

COMPUTERWORLD

Databases lag in object arena

By Kim S. Nash
SAN FRANCISCO

For all their talk about enabling efficient and productive client/server migrations, relational database makers have done little to directly address users' increasing interest in object-oriented technology, several users and analysts said last week.

At the DB/Expo '94 conference held here, several observers said the object-oriented features found in development tools are continuing to pile up. But they noted that corresponding object functions in relational database engines—which will anchor most new client/server systems—are sorely lacking.

"The experts say that you can't do client/server fast or well without object techniques, but I just don't see how relational databases let you use objects fully," said Greg Russo, a knowledge engineer/developer at CCH Legal Information Systems, a legal software firm in New York.

Databases, page 120

Routing spec stumbles

Doubts cast on Data Link Switching's support for interoperability

By Craig Stedman

Debate sharpened last week over the usefulness of the proposed Data Link Switching standard for routing SNA data over TCP/IP backbones. Skeptics questioned whether DLSw will include enough base-level functionality to support true interoperability between routers.

Users, analysts and even some vendors taking part in the DLSw process are indeed worried about the expected absence of key capabilities from the portions of the standard that vendors would be required to implement. The capabilities include NetBIOS name caching, Ethernet loop prevention and bandwidth prioritization.

Andy Marcella, senior policy adviser for the state of Washington's Department of Information Systems in Olympia, is among the users



John Sieggins of Delmarva Power & Light does not intend to implement DLSe unless someone gives me a good reason, he says.

counting on DLSw to live up to its promises.

"We need interoperability with other [legacy] networks that may not be using the same routers," Marcella said.

Benefits questioned

Other users said they are withholding judgment on DLSw's value. John Sieggins, supervisor of network operations at Delmarva Power & Light Co. in Newark, Del., said he is not convinced that switching his network from a proprietary SNA/TP routing technology developed by McData Corp. to DLSw would be worth the trouble.

DLSw may become "a de facto standard," but that does not guarantee it will be more valid than other approaches. Sieggins said, "It's just that the people trying to put it together are a lot

Routing, page 120

Engineers to IS: Drop that title!

By Julia King

Are you calling yourself a "software engineer" these days? You may be breaking the law in 48 states.

In what some call a ludicrous twist in the ongoing controversy over licensing computer professionals, Tennessee state engineers such as George Phelps are running into trouble from beefed-up enforcement of the state's 73-year-old title act.

It seems that title laws—in the books in 48 states—prohibit computer professionals from calling themselves "engineers." If strictly enforced, the statutes could mean \$1,000 fines for the legions of information systems employees and consultants who use

"engineer" in their job titles.

"The state of Tennessee does not even know what a software engineer is," fumed Phelps, who until last week was director of engineering at Data Research and Application, Inc. Since 1982, the firm has called itself a software engineering company.

But to comply with the Tennessee

see law, which a company employee brought to Phelps' attention after attending a local Institute of Electrical and Electronics Engineers, Inc. meeting, Phelps had to change his title to director of technology. Former software and hardware engineers are now called software and hardware specialists.

Title, page 118



This law is intended to protect the public from fraud.

Information superhighway

Paving the road, lane by lane

By Computerworld Staff

The completion of the information superhighway will not be marked by ribbon-cutting ceremonies or blaring trumpets.

Rather, the pieces of this complex environment, also called the information infrastructure, are being assembled—and rapidly so—by a hodgepodge of computer and software vendors, long-distance and regional carriers and visionary user companies.

From an information systems standpoint, the challenge is to build and deploy computer and network architectures that anticipate ubiquitous, easy-to-use broadband networks.

Yet this construction project, unlike any other in history, lacks a central architect

and a basic blueprint. Each week, some combination of industry players announces alliances or strategies that will inevitably come. Still, the chaos does not seem to worry companies that spy an opportunity in the market.

"We're not going with one horse in this race," said Andrew Nibley, editor and executive vice president at Reuters NewsMedia, Inc. in New York. Formed in January, the company will pursue business opportunities in nontraditional markets such as on-line information networks and interactive cable systems, as well as the education and health care industries.

"We have relationships with telephone companies, cable companies, wireless companies and on-line companies," Nibley said.

Superhighway, page 28



"How do you view the level of
JOB SATISFACTION in your
company's IS department?"

Percent who answered
"Declining"

Senior executives	Middle managers	IS professionals
17%	36%	45%

The view here looks rather bleak from the executive office. Turn to page 12 for the rest of our exclusive survey.

Survey ends, page 12

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SOUND OFF!

JOIN MY MAINFRAME? You bet, says The Trane Co.'s IS chief. L. John Severson, whose company is re-engineering to a client/server system. However, he's IS manager Joe Vincent, on the other hand, says it's easy to put industrial-strength applications on anything but a mainframe.

L. JOHN SEVERSON:
MAINFRAME NO!



JOE VINCENT:
MAINFRAME YES!

NEWS

- An IBM reorganization could lead to the development of technologies for creating a common set of object-based APIs across its system platforms. *Page 4*
- The PowerPC picks up steam as Microsoft prepares Windows NT for PowerPC, and clone makers ready systems for market. *Page 4*
- IBM unveils its In-Touch network integration services. *Page 6*
- Users of Digital's Rdb are in limbo — few third-party developers have pledged support and Digital itself is emphasizing Oracle, Sybase and other relational databases. *Page 7*
- Computer Associates reported record fourth-quarter earnings and revenue, citing strong sales of CA-Unicenter products. *Page 8*
- Developers say Powersoft has improved customer support and is coping with growing pains. *Page 10*
- IBM rolls out new RS/6000 workstations and servers. *Page 16*
- SAP America plans to address customer concerns about support. *Page 16*
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DESKTOP COMPUTING

- What happens when your vendor delays that next big software release you've been waiting for? Don't get mad, get in gear. *Page 41*

WORKGROUP COMPUTING

- Microsoft's Windows NT makes headway as a server system, but it will not threaten Unix in the short term. *Page 51*

ENTERPRISE NETWORKING

- Artisoft has moved into Novell's turf with a 32-bit dedicated server based on NetWare 4.x. *Page 59*

LARGE SYSTEMS

- British Gas standardizes data access for end users. *Page 68*

APPLICATION DEVELOPMENT

- As the nifty-gritty work gets under

way in melding The ASK Group into Computer Associates' stable, ASK loyalists are wondering what happens to the database and object-oriented technology they hail as superior to that of rival products from Oracle, IBM and others. *Page 73*

CAREERS

- If you consider yourself a hacker, a job with a smaller value-added reseller may be right for you. *Page 102*

MARKETPLACE

- What users want and need from PC support. *Page 113*

COMMENTARY

- IS professionals can strike a blow against the decline in public education by donating used computer equipment and software to local schools, according to Bill Laberis. *Page 36*
- Elsewhere in education, elementary schools can benefit from the information highway, allows the once-skeptical Gary Anthes. *Page 80*
- Michael Sebraque points to expense forms as a business institution that needs automation. *Page 97*
- Charles Babcock says the alliance of Sun and Next is more than just another industry pairing. *Page 98*
- Jerry Sitzer says you should make the most of Cobol and not shift to C to get software quality. *Page 97*
- Not using Notes' built-in E-mail features can have major ramifications, Ken Lowrie says. *Page 51*
- Carole Palton suggests ways to avoid big dumb mistakes. *Page 42*
- IBM employees in Cranford, N.J., are in some ways making more with less, Paul Gillin says. *Page 67*

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Executive Briefing

Morale is down. Performance is declining. Stress is up. *Computersworld's* annual Job Satisfaction Survey of IS managers and their staffs reveals trouble on the human side of the information technology world. If IS executives want a first-class organization, they had better deliver first-class leadership and exciting new challenges to their IS staff, the research shows. *Page 81*

Don't look for a grand opening of the information highway. It will come together piece by piece as vendor alliances are formed. On the user side, companies in vertical industries ranging from health care to entertainment are preparing for a future in which past models of commerce and collaboration with customers will be radically changed. *Page 1*

There's no such thing as a hardware or software engineer, according to so-called title acts in 48 states. On the books for decades (but largely ignored), the statutes are being actively enforced by states such as Tennessee. The upshot for information technology professionals: a lot of grief and expense. *Page 1*

After a couple of slips in the beta schedule, Microsoft will finally deliver the first beta version of Windows 4.0, code-named Chicago, next month. It will feature the long-awaited document-centric interface. *Page 14*

IBM's plan to shift the AS/400's operating system to user-based pricing this fall means customers will soon get an introduction to license management technology. IBM is integrating a license manager into OS/400 Version 3 to track usage and ensure that only the licensed number of users are active on a system. *Page 67*

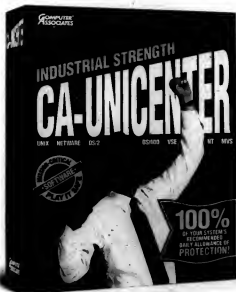
EDI is having an impact on health care. An electronic data interchange application implemented by Aetna speeds patient check-in by telling hospital staffs within six seconds whether a patient has sufficient health insurance coverage. *Page 58*

Toy maker Hasbro computerized its product tracking and customer information on the mainframe and moved to a client/server architecture within a year and a half, increasing the speed of end-user access to information. *Page 73*

The 5th Wave by Rich Tennant

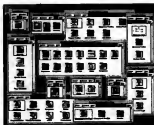


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IBM eyes new APIs

Reorganization targets object developers enterprisewide

By Ed Seannell and Craig Stedman

IBM last week announced a reorganization designed to establish a common look and feel for users across its operating systems and provide common application programming interfaces for developers.

The reorganization creates a group responsible for accelerating the development of object-based technologies for use on IBM systems from the desktop to mainframes.



IBM's Lee Reisling will preside over the new development unit.

The targeted technologies include key pieces of IBM's Workplace code and application frameworks from Taligent, Inc.

The new development group, to be based in Austin, Texas, will be an amalgamation of personnel currently working on Workplace and selected staff plucked from each of IBM's major operating systems teams, including OS/2, AIX, OS/390 and MVS.

Bidding for the lead

The Workplace technologies that will be developed by the group include IBM's microkernel, its Systems Object Model and Distributed Systems Object Model (SOM/DSOM) and selected pieces of Component Integration Laboratories' OpenDoc.

The move is an attempt to better leverage common IBM technologies across the company and take an aggressive stab at being an industry leader in client/server — two of IBM Chairman Louis V. Gerstner's strategic imperatives, a spokesman said.

David Thomas, general manager of IBM's

AS/400 division, said Workplace and Taligent "will provide a consistent development environment across all of our systems, plus allow us to keep our own development expenses in line" by focusing internal operating system work on Workplace and MVS.

Pieces of the technology are scheduled to be available this year for application development purposes. Thomas said. A full 64-bit implementation of IBM's microkernel, supporting OS/400 and other operating system personalities, will be ready by 1996 at the latest, he added.

Applications for Intel Corp. and RISC-based desktops, RS/6000s and AS/400s would be developed to take advantage of IBM's microkernel and then targeted at the appropriate operating system personality, according to Frank Dzubek, president of Communications Network Architects, Inc. in Washington. Mainframe applications would still be written for MVS because the microkernel will not run on System/390 machines, he added.

Same old strategy and dance?

IBM's strategy "makes sense, but we've seen them do this sort of thing before" with things such as the failed Systems Application Architecture (SAA), said a user at a large IBM account who has been briefed by the company. "We'll have to see if they can execute what's now on paper."

The Taligent-based approach will be "much more simplistic" for users than SAA was, according to Dzubek. "That stuff was IBM-oriented. This is platform-based."

The new development unit will be headed by David Schleicher, who reports to Lee Reisling, president of IBM's Personal Software Products, IBM said. IBM Vice President Peter Schneider is charged with ensuring "effective cooperation" among the five IBM divisions developing and implementing Workplace technologies.

PowerPC picks up steam as NT, clones near market

By Michael Fitzgerald and Terbo Limmon

This week's Computer Trade Show in Taiwan will feature the first PowerPC boxes that are compliant with the PowerPC Reference Platform (Prep), which IBM and Motorola, Inc. are putting forth as a standard.

The Taiwan New PC Consortium will push to get Pre-compliant PCs out the door, with vendors such as Taitung Co. and Mitac International, Inc. showing systems and motherboards that will beat IBM's offerings.

More power

Most of the Taiwanese offerings are expected to use the PowerPC 601. Mitac will show a motherboard that works with both the 3V 601 chip and the 3.3V 603. Up to 10 Taiwanese companies are expected to show add-in cards for the PowerPC.

These vendors are expected to ship systems in the third quarter, probably using Microsoft Corp.'s Windows NT as the operating system. Acer Corp., which will not demonstrate a PowerPC box at Computex, is expected to begin supplying PowerPC systems on an OEM basis in the third quarter, sources said. IBM is not expected to ship its first Prep-based PowerPC units until the fall.

The key to sales of these boxes,

however, is likely to ride on the success of NT.

"For [the Taiwanese] the question is, how much acceptance will be there for Unix and NT?" said Bruce Stephens, an analyst at International Data Corp. in Framingham, Mass.

Stephan said Apple Computer, Inc. was unlikely to broadly release its operating system, and most OS/2 users are IBM customers who would probably not buy hardware clones. He added that Taiwanese firms have had trouble cracking the U.S. market.

"The Taiwanese will have to prove themselves," agreed Brian Rittenger, marketing manager at the Sacramento Bee Publishing Systems in Sacramento, Calif.

Separately, IBM and Motorola will try to push PowerPC development in Asia this week by announcing what sources said will be the first PowerPC Technical Center in Taipei.

The center is aimed at providing support for the Taiwan New PC Consortium, which is building PowerPC clones, and at expanding the presence of the PowerPC chip in Asia. The sources said it will have 20 staffers from IBM Taiwan and Motorola Taiwan. The companies declined to comment.

Edmonson is an *IBM News* correspondent in Taipei.

Big players move into position to grab interactive TV share

By Mark Halpern

Computer industry wheels continued turning in the cable TV business last week as Hewlett-Packard Co., IBM and Apple Computer, Inc. all struck set-top box alliances and deals.

The action comes as computer companies jockey for position in what could be an explosive market for interactive TV services to consumers. About 91 million homes in the U.S. have access to cable services, according to Paul Kagan Associates in Carmel, Calif.

IBM and Apple last week said they intend to join forces with Atlanta-based cable and broadcast equipment provider Scientific Atlanta, Inc. in an effort to create an

architecture for set-top boxes.

The architecture would be based on the PowerPC processor, Apple's object-oriented OpenDoc software, IBM's SOM/DSOM and Kaleida Labs, Inc.'s ScriptX multimedia programming language.

Help wanted?

The alliance, subject to a definitive agreement, appeared to pick up where Kaleida left off at Scientific Atlanta. The company recently stopped work on interactive TV development to focus on ScriptX [CW, May 15]. It is not clear yet whether Kaleida's interactive TV developers will be offered jobs by the alliance. Kaleida Chief Executive Officer Mike Braun said details are still being worked out. An Apple spokeswoman said Kaleida

Limited choices

With the exception of a few partial areas in some parts of the country, most set-top boxes are still one-way.

Furthermore, consumers often do not have a choice of boxes and must take the brand assigned to them by their cable provider. That should change with modifications in government regulations.

staffers are "welcome to apply."

Meanwhile, HP said it has licensed General Instrument Corp.'s DigiclipBt set-top box technology. The deal sets the stage for HP to sell its homes now served by General Instrument, a top supplier.

Furthermore, HP said the leading cable operator, Tele-Communications, Inc. in Englewood, Calif., has increased orders for HP's forthcoming interactive TV boxes from 100,000 to 500,000. And the fourth leading cable provider, Comcast Corp. in Philadelphia, also agreed to order the systems.

"I think HP is among the best positioned to be successful at this," noted Denise Caruso, editor of the San Francisco newspaper "Technology and Media." "They've been in the consumer electronics business a long time, and they've proven they know how to get the costs down, which is the most important thing that's been overlooked in the set-top battle."

Corrections

The article "Turner slashes staff: IS feels the pain" [CW, May 23] contained several inaccuracies. Richie Mazzella was given the wrong first name, and David Furth's name was misspelled. Furth did in fact return phone calls to his office. Restructuring charges for the corporate layout were the cause of the quarterly loss rather than the result. *Computersworld* regrets the errors.

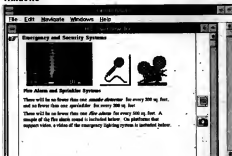
Due to an editing error, columnist David Michael Bernard's company was misspelled [CW, May 23]. He is director of corporate technology at Colliers ABR in New York.

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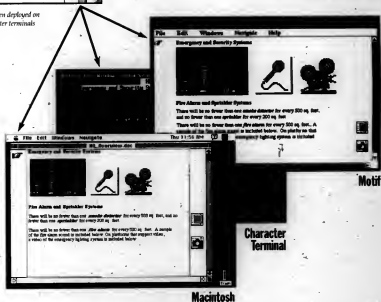
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Chris Nicholls
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Sun/Next: Allies in need

Watching the willy-nilly formation of alliances and so-called strategic partnerships makes you realize how often they are based on vendor wheel spinning and wishful thinking.

The alliance of Sun Microsystems and Next Computer, however, is something different. It is an unusual harnessing of two companies at a moment when each needs the other's strength.

Sun software developers were early converts to the use of objects, and an object development team at SunSoft was commissioned to create the plumbing to allow objects to be used over a network. Sun's Distributed Objects Everywhere (DOE) was going to do for objects what NPS did for Unix workstations—overcome the isolation of the stand-alone desktop.

After building much of this plumbing, Sun found it lacked many of the application development tools that sit atop the infrastructure. NextStep was far ahead of the competition in its GUI and cross-platform development tools. For example, to the best of my knowledge, NextStep is the only supplier of a cross-platform debugger for object development.

To say Sun lacked the complete tool set doesn't mean it wasn't hard at work on its own tools, and the alliance with Next left parts of that effort in the lurch. But Sun CEO Scott McNealy and SunSoft development managers are publicly committed to integrating the NextStep tools into DOE.

But the real gain in the Sun/Next alliance is the way it pushed Next out of its elegant, narrow niche into the mainstream. Sun is committed to publish by June 30 a specification for a version of NextStep called OpenStep. Based on NextStep Release 3.2, OpenStep will offer operating system independence and make a set of APIs and high-level tools available to all. The first place they will appear will be under Sun's Solaris. The second will be under Hewlett-Packard's HP/UX. And a deal with Digital to put them under OSF/1 appears likely. NextStep is also being ported to run natively on its own Mac operating system on the SPARC chip.

Much of the software development community senses that many client/server needs will be met by systems that can make use of objects on a network. Many of the developers of large corporate systems are already using Sun, HP or other Unix workstations, as well as PCs. They will want as much sophisticated cross-platform capability as possible and will have the option to look to OpenStep to get them there quickly. In addition to getting the OpenStep tools, they will get the richest set of class libraries available with an object-oriented development environment.

Flat-panel update

Last week in this space I took a cursory look at the embryonic flat-panel industry. One of the more startling examples of underutilized U.S. flat-panel expertise is the Xerox PARC 13.3-in. active-matrix LCD of 6.3 million pixels. Its resolution doesn't merely match that of the finest CRT; it doubles it. Images on-screen are more than match those of a color laser printer, its proponents claim.

Charles Wilson, executive vice president of rival Optical Imaging Systems, says his engineers termed the Xerox PARC display a remarkable accomplishment. "Now all they have to do is make more than one," he adds.

Melvin Thompson, chief technologist at the PARC, said that far from having made just one, Xerox has produced "hundreds" in its low-volume clean room facility in Palo Alto, Calif. It seems to me an entrepreneurial Xerox PARC spin-off could be one of the beneficiaries of the proposed U.S. Department of Defense funding to encourage further development of a U.S. flat-panel industry.

Babcock is *Computerworld's* technical editor. His MCJ Mail address is 575-2732.



Network integration

IBM's In-Touch to expand network reach

By Lynda Radosevich and Michael Fitzgerald

With the unveiling last week of its Intelligent Communications initiative, IBM is pausing yet another big picture technology integration scene this already has users wondering if the artist can complete the canvas.

Code-named "In-Touch" (CW, Dec. 20, 1993), IBM's new backbone scheme aims to integrate public and private electronic-mail systems, information services and telephony with intelligent agents and security measures. Doing so will permit, for example, a business traveler to automatically receive all messages and information over wired or wireless networks using one access number and whatever computing device he wishes.

It will also allow IBM to offer large corporations its services as a network administrator and outsourcer. This could generate billions of dollars in non-hardware revenue by the end of the decade, analysts said.

Looking for a network

"For companies looking to have a worldwide network, it's a make-or-buy decision. That's where IBM hopes to come in," said Kimball Brown, an analyst at Dataquest, Inc. in San Jose, Calif.

IBM will deliver in the fourth quarter software developer's kits that let information providers package their information in the service's object-oriented format (see story below). Services based on the Intelligent Communications network will begin to appear in 1995, an IBM official said.

However, it will take several years for IBM to complete its grand plan, which makes many skeptics of IBM's ability to deliver it.

"We'd love for people to be able to dial in without worrying about where they are and how

they get in. . . . But they're talking about products that won't exist for a long time," said Victor E. Mutnick, corporate vice president at New York Life Insurance Co.

"Conceptually it sounds like a wonderful idea, but I've heard so many wonderful announcements about how the world will change, and then it doesn't happen," said Glenn Jurmann, section manager of office technology at Baxter Healthcare Corp. in Deerfield, Ill.

More than a dream

But IBM's plan to start offering one "mailbox" access point to existing communications networks—such as Advantix, ARDES, CompuServe and the IBM Information Network—makes it more than a pipe dream, analysts said.

"You won't see the whole en-children right away, but I think IBM is taking realistic view of the rollout," said William Ablandi, an analyst at BIS Strategic Decisions in Norwell, Mass.

That rollout will begin with partnership announcements expected next month and continue throughout the year. IBM would not say who the initial partners will be, but analysts predicted they will include regional telecommunications and wireless carriers, as well as financial and news information services (CW, April 18).

IBM said it is working with application providers such as Lotus Development Corp. to tie in private E-mail networks such as CC-Mail, but it is unclear whether those developments will require specific partnerships. IBM also has a general manager at IBM's Intelligent Communications Service.

While IBM's plans mirror AT&T Corp.'s PersonalNet and others, IBM may have better luck working with the regional Bell than AT&T. IBM is well-positioned because of its experience in developing complex networks, analysts said.

Turning signal

Part of IBM's Intelligent Communications strategy is to leverage its stake in Advantix, Prodigy and ARDES networks, which have a combined 3.5 million users. IBM will offer one of the ramps to those networks with its object technology.

Objects and agents in the mail

A key part of IBM's Intelligent Communications backbone is object technology that will let users access mail, fax, voice messages and blocks of information with links to other blocks from one global mailbox.

IBM said it will deliver a software developer's kit in the fourth quarter that lets information providers wrap their information in an object shell based on IBM's System Object Model and Distributed System Object Model object standards and Object Rexx,

IBM's object scripting language.

The company plans to provide by next year agent technology in the form of preference settings that let users decide what information appears in their in-box.

At an unspecified date, IBM plans to add intelligence to the agents so they can seek information without being dispatched by the user. The agents will reside on the network, rather than in the end device so they can operate even when the user is not logged on.

—Lynda Radosevich

Rdb falling by Digital wayside

By Mary Brandel

■ The writing on the wall is hard to read for users of Digital Equipment Corp.'s Rdb database product. But the message seeping through to longtime customers is clear: Rdb is losing its status as Digital's top-priority database.

Digital still voices support for its relational database management system and touted it at DB/Expo '94 in San Francisco last week as "the world's fastest database software." The company also seems to have breathed new life into Rdb by porting it to OpenVMS and OSF/1 on the Alpha AXP platform.

But customers said other actions make it look as though Digital is trying to sweep Rdb under the rug.

"I've never been able to get Digital to compare Rdb with anyone else's database," said Kenneth D'Aquin, system manager at the University of New Orleans. The one platform for which D'Aquin could locate comparative specifications was the VAX 10000 Model 610, "and Rdb was 27% faster than Oracle 7," he said. "I couldn't understand why they didn't point that out."

Lack of commitment

Furthermore, third-party support for Rdb on Alpha is spotty at best. "They're diminishing Rdb in favor of Oracle, and that's reflective in the support Rdb will get from the third-party community," said Chris Christensen, an analyst at International Data Corp. in Framingham, Mass.

A number of key application developers have not committed to supporting the Rdb database in Alpha versions of their applications. And some who support Rdb do not do so across the full line of Digital's operating systems.

For example, SAP of America, Inc.'s R/3 client/server application will support databases from Oracle Corp., Informix Corp. and Sybase, Inc., but SAP has no plans for Rdb, company officials confirmed last week. PeopleSoft, Inc.'s financial and human resources applications will support Rdb but only under OpenVMS, not OSF/1, Digital's version of Unix.

Digital can name several major vendors that do support Rdb on OSF/1, such as Information Builders, Inc. and Cognos, Inc., but the latter holes represent "another issue that makes us question moving toward that platform," said Stephen Tibor, assistant research scientist at New York University. The university decided instead to move to The ASK

Group, Inc.'s Ingres database. Computer Associates International, Inc. is currently acquiring ASK.

And it is Oracle's database—not Rdb—that will be included in Digital's release of Unix database clusters in the next couple of months, said Terry Shannon, an analyst at Illuminata in Hollis,

N.H. The release will include Alpha AXP boxes running the Oracle parallel server and Encore Computer Corp.'s reflective memory product.

"It's significant that Digital is relying on a third-party product to provide the underpinning of its Unix strategy," Shannon said. "Clearly, Oracle has it now" and

clearly Rdb, doesn't in the Unix segment."

Analysts said it is not likely that Digital will be able to keep Rdb up to speed with the market.

"People should be looking for other databases, particularly for new applications," said Lynn Berg, an analyst at Gartner Group, Inc. in Stamford, Conn. "It's inconceivable that Digital would have enough money to keep competitive with... other relational databases."

IAM BREAKS THE...

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Fast track

Digital claims that 4.6GB applications are shipping on its Alpha AXP platform, running either OpenVMS, OSF/1 or NT, according to Illuminata, a consultancy in Hollis, N.H. Nearly 5,000 will be shipping by the end of the year.

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News Shorts

Digital CFO resigns

Reverberations from Digital Equipment Corp.'s third-quarter loss continued last week, as analysts linked the surprise financial result to the resignation of Chief Financial Officer William Stead, 51. "It is indicative that Mr. Palmer is doing some Texas-seale butting out around the company to straighten things out," said Terry Shamon, an analyst at Illuminata in Hollis, N.H. Replacing Stead is Vincent Mulkeny, 46, formerly the corporate controller at Digital. Separately, Digital appointed Bernard Auer to head up the Personal Computer Business unit.

Chicago Board of Trade goes wireless

The Chicago Board of Trade plans to hand out handheld wireless computers to its 3,000 futures traders and clerks by October. The board, one of the largest futures exchanges in the world, is making the move to enable faster, more accurate transactions. The plan is for Syntex, Inc. handhelds to communicate via two-way radio waves with a dual-processor SPARC-server 1000 from Sun Microsystems, Inc. A Sybase, Inc. System 10 database is expected to translate buy and sell orders over fiber Ethernet to another Sybase system at the Board of Trade Clearing Corp. in Chicago, Sybase officials said.

And the winners are...

Information systems projects by state governments in New York, Pennsylvania, Texas, Utah, Hawaii and Kansas won awards for "outstanding achievement" from the National Association of State Information Resource Executives based in Lexington, Ky. The York was for its Center for Technology in Government, a technology lab for re-engineering government processes, while Texas won for PC-based systems supporting refugee service agencies.

OSF ships network management piece

The Open Software Foundation (OSF) announced at a meeting of its members held here last week that it is shipping the Distributed Management Environment Network Management Option (NMO) 1.0. The new technology allows users to access an X/Open Co. application programming interface that is linked to the underlying Simple Network Management Protocol and Common Management Information Protocol communications protocols used in many open systems networks. NMO 1.0 source code is priced at \$120,000, the OSF said, but a developer's copy is available for \$12,000.

Novell Q2 revenue up 17%

Novell, Inc. last week reported revenue of \$407 million for its second quarter, which ended April 30. Profits for the quarter grew 30% to \$106 million, compared with \$80 million for the same period last year. The results include Sun's estimate \$81 million purchase of a license for Unix technology, as well as additional associated expenses of \$35 million to Novell. Excluding these royalties, net revenue for the quarter was up 17%, and profits declined 7% to \$75 million, according to Novell.

SHORT TAKES Blue Cross and Blue Shield of New Jersey and The National Registry, Inc. in St. Petersburg, Fla., formed a joint venture to sell digital fingerprint identification technology for health care and welfare applications.... Bruce Benson has been named senior vice president of MIS at Sony Music Entertainment, Inc. in New York. Benson was formerly a partner at Price Waterhouse.

More news shorts, page 119

CA mainframe sales drive record Q4 profits

By Thomas Hoffman

Computer Associates International, Inc. last week outpaced even the most bullish forecasts of financial analysts and reported record earnings and revenue for the fourth quarter.

The islandia, N.Y., software behemoth's mainframe sales continued to dominate its Janus-like balance sheet by contributing a hearty 78% to the company's \$633.7 million fourth-quarter revenue. Company executives and financial analysts were especially encouraged by the 167% growth of its mainframe products.

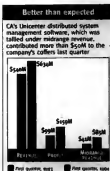
In particular, CA's incenter distributed systems management suite was a strong performer, contributing more than \$60 million, or roughly 60%, of the company's \$85 million in quarterly mainframe revenue.

Skepticism lurked

"They're trying to make a statement that their client/server strategy is for real. There had been a lot of skepticism about that until their numbers came out," said Stephen J. McCellan, a first vice president at Merrill Lynch Global Securities in San Francisco.

"We feel good about the midrange strategy," said Sanjay Kumar, CA president and chief operating officer. "It's easy to put our press releases and slide shows on products, but it's tougher to put products out."

CA's \$85 million in fourth-quarter midrange sales represented 13.4% of the company's total revenue.



For the same period last year, midrange revenue was \$41 million, or a mere 7.6% of the company's \$540.1 million total revenue.

For the period ended March 31, CA reported a 17% revenue gain to \$633.7 million from \$540.1 million in the same quarter last year. Profits for the quarter rose 6% to \$106 million from \$105.3 million.

McCellan and other CA watchers have expressed concern in recent months that the otherwise multi-award mainframe industry would begin to sap CA's high-end software sales growth, but that scenario has yet to unfold.

For the fiscal year, CA's revenue reached \$2.5 billion — a 17% jump from \$1.8 billion for fiscal 1993. Profits grew 63% to \$401 million from \$245 million last year.

Mainframe revenue grows

For the quarter just ended, CA's mainframe revenue grew 17% to approximately \$494 million. "There had been concerns that the mainframe market was dead in the water and that it would drag down CA and other mainframe software vendors, but that doesn't seem to be the case," McCellan added.

Kumar acknowledged that the mainframe market has ebbed, but he insisted that CA's forays into client/server computing with packages such as CA-Unicenter have continued to help the company draw in new high-end business. "Mainframes are not going to go away for a long time," Kumar said.

Luck played a role in CA/EDS settlement. See page 69.

Texas bank sues EDS

Suit alleges losses because of faulty computer system

By Mark Halper

A small South Texas bank is attempting to collect more than \$300 million from outsource Electronic Data Systems Corp. (EDS), alleging that what bank officials claim are lost business opportunities as a consequence of faulty computer operations.

In a suit scheduled to go to trial this week, Texas State Bank in McAllen, Texas, alleges EDS misrepresentation itself in 1985 when the systems integrator said it understood the bank's existing system from Fiserv, Inc. well enough to convert the bank within three months to an EDS system.

Serious problems

"To the contrary, EDS' conversion and postconversion

Many qualms

Texas State Bank alleges numerous problems with EDS' work, from unreasonable amounts of computer downtime and a system that calculates interest based on the wrong number of days to loan payments inaccurately applied to customers' accounts and bank customers prevented from using their automated teller machine cards.

data processing and [automated teller] service were disastrous, causing serious problems to [the bank's] daily operations and growth," the bank charged in depositions filed in Hidalgo County State Court, in Edinburg, Texas.

Both the bank and EDS, which broke off their business relationship in 1981, declined to comment on the suit.

System not widely used

EDS is believed to have used a banking system at Texas State Bank that it acquired in 1988 with its purchase of Mitech Corp. This system is not one that EDS widely uses at other accounts.

The bank is seeking \$300 million in exemplary damages, plus an additional \$65.5 million for what it claims were lost business opportunities. In its court papers, the bank said the problems with EDS caused it to miss two bank acquisitions worth \$17.5 million, plus another \$46 million in lost business from customers.





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PowerBuilder copes with adolescence

By Melinda-Carol Ballou
Orlando, Fla.

Powersoft Corp. has greatly improved its customer support and stabilized the buggy Version 3.0 of its PowerBuilder tools, developers said at last week's Powersoft user conference here.

"Last fall I would be embarrassed for an hour

waiting for customer support to get to me, and now it usually only takes a few minutes," said Len Leach, a senior programmer/analyst at Music Television Networks, Inc. in New York.

Growing up certainly has its costs. As Powersoft's revenue increases, the company has been expanding and trying to address a burgeoning user base, which

last year grew faster than the vendor's ability to support it.

And as those users become more knowledgeable and implement more complex client/server applications, they are reaching beyond the current capabilities of the PowerBuilder tools, several customers said.

Interviews with some two dozen devel-

opers at the conference indicated that most are satisfied with the capabilities of PowerBuilder for their current application requirements. But that was not the case for several who said they were pushing the outer limits of application complexity for client/server.

Career advice

In a midweek keynote speech, Chief Executive Officer Mitchell Kertzman said PowerBuilder expertise would lead to secure information systems careers. But one developer questioned that notion as well as the tools' ability to scale up the enterprise.

"What is your strategy and vision, and can you assure me that PowerBuilder will not become the dilute of client/server?" asked Lars Lindstedt, senior

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Growth spurt

A year ago, Powersoft had only 26 people answering its support hot line. Today there are 50. As recently as last May, the company had slightly more than 200 employees. It has since grown to more than 500.

While Lindstedt's organization was able to quickly and easily put together an invoice management application with simple data structures that performed well, he said the performance of other key applications was unacceptable.

"With large-scale stuff, we've had significant problems. We spent 300-person months creating an application for very complex data tracking of investment projects. We have very demanding users," Lindstedt said. "Script execution in PowerBuilder is an issue."

Part of the answer to the question of PowerBuilder scalability may arrive in strategic announcements expected this summer, according to company sources.

Powersoft is expected to announce in July links between PowerBuilder and AT&T Corp.'s Top End and Novell, Inc.'s Tuxedo transaction processing monitors. The links will use technology from Tangent International, Inc. This expands on announcements made this week of an alliance with Transarc Corp. to ship PowerBuilder links to Transarc's Encina transaction processing monitor later this year [CW, May 29].

Internal work is also proceeding at Powersoft to address the ability of the tool to scale up the enterprise, company officials said. Release 4.0, which is expected next fall, will primarily focus on multiprocessing support, however.

ASK users ponder future after CA buyout. See page 73.

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Router sales shifting to low-end devices

By Stephen P. Klett Jr.

Cisco Systems, Inc.'s recent drop in earnings has cast a dark cloud over the long-term future of the high-end backbone router [CW, May 23]. At the very least, observers said the heyday of the router's high margins and rapid growth of the past few years may be coming to an end.

As a result, Cisco and its main competitor, Wellfleet Communications, Inc., are under the gun to compete on price as the market shifts to low-end access devices for connecting branch offices.

Moreover, users are holding off on major backbone router purchases as they evaluate alternative technologies such as Asynchronous Transfer Mode (ATM) and switching.

Users are generally willing to sacrifice cost for higher reliability and more robust software when purchasing high-end backbone routers. However, when looking for a router to connect a branch office or a handful of users, cost becomes more important because less intelligence is required. For example, a full-blown Cisco 7600 backbone router can cost as much as \$100,000, while a low-end 2500 tops out at roughly \$8,000.

"Router vendors are starting to hit the wall," observed Valentin Serbar, program director for global networking strategies at Meta Group, Inc. in Reston, Va.

New world order

"In the new world, the router won't be used as an interconnecting device. Another box, such as an ATM switch, will be used," said Kim Starkey, director of communications technology at Bear, Stearns & Co. in New York. "We're trying to keep router purchases to just those that are essential, and now most purchases we make are in the low end."

Other users echoed this stance. "We are evaluating switching technology as a means to cut costs compared with using routers," said Matt Jacoby, senior networking analyst at Norwest Marquette, Inc. in Minneapolis.

Chevron Corp. in Oakland, Calif., is buying a mix of low- and high-end routers. "However, we

have our basic backbone infrastructure in place and are beginning to look more at the low end for our remote locations," said T. X. Ho, senior communications engineer.

Home Savings of America in Irwindale, Calif., for example, has put a hold on purchasing backbone routers while it evaluates next-generation boxes from companies such as SynOptics Communications, Inc. and CalNet Systems, Inc. [CW, Feb. 21].

In the meantime, users said they will continue to snap up low-end access routers for branch office connections.

Lower prices

This is both good and bad news for Cisco and Wellfleet because while shipment volumes are up, these devices

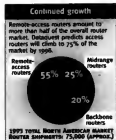
offer lower margins. Large revenue growth is, therefore, more difficult to sustain. However, it is good news for users, who will benefit through better prices because of increased competition.

While analysts cautioned that all-out price wars over pricing were not imminent, they said a heated battle may be just over the horizon.

"There is going to be a major collision between switching hub and router vendors that could start a price war," said Paul Callahan, an analyst at Forrester Research, Inc.

in Cambridge, Mass. Analysts also said Cisco and Wellfleet will find tougher competition than they are used to at the low end.

"With everyone offering the same basic feature sets, Cisco's name alone is not enough to justify an extra \$500 for a router in a remote site, whereas it may have been in the backbone," said Charlie Robbins, an analyst at Aber-



deen Group in Boston.

But to compete with the multitudes of smaller companies that have rolled out inexpensive low-end access devices recently, Cisco and Wellfleet will have to offer discounts on large purchases, which is something the companies are not accustomed to, analysts said.

According to a company spokesman, Cisco will not slash margins to win market share in the access market — at least in the near term.

Wellfleet will not make any drastic pricing moves soon but will do so if it becomes necessary, a spokesman said.

Time to update?

At least one report was circulating last week that major configuration work was required to run Wellfleet's latest System 7 software on its older boxes.

"The prerequisites to run [System 7] on older products are very significant," said John Scoggin, supervisor of networking operations at Wellfleet site Delmarva Power & Light Co. in Newark, Del. "Older customers are getting penalized for having bought [Wellfleet] equipment when they did."

Among other things, Scoggin said it is necessary to change firmware, upgrade router

memory to 8M bytes and upgrade the 68020 processor to a 68030. "The only thing I'm not messing with is the power cord," he complained.

Wellfleet said in its latest software release — System 7.11 — addressed most of the issues Scoggin and another user raised, but it acknowledged that some reconfiguration work may be required for older routers.

Five large Wellfleet customers currently running System 7.11, however, reported no significant problems when contacted last week. —Julia King

Support issues still irk Gateway

By Jaikumar Vijayan

Even as Gateway 2000, Inc. introduced a three-year standard warranty on all of its new systems last week, users' concerns relating to support, service and system reliability continued to budge the direct-marketing giant.

The latest issue for some users relates to a defective video card that causes a 3-pixel-wide vertical strip to vanish from the left edge of the monitor under certain configurations. The missing strip occurs when applications are run under Windows at very high resolution using 65,000 colors. In some text applications, the defect also wipes out the left half of the first character of each line.

The bug concerns Gateway users who have ATI Technologies, Inc.'s 1M-byte Video RAM Video Electronic Standards Association Logic Board with the 68630 RAM Digital Analog Converter video controller card that was sold as a standard on Gateway systems between August 1992 and June 1993.

"Certain kinds of graphics, [computer-aided design], presentation or Photo Shop applications are affected" by this defect, said George Mah, who runs a consulting firm in Vancouver, British Columbia. Mah alerted Gateway about the defective card several weeks ago but said it has only just been resolved.

While several users viewed this defect as a fairly irritating but non-critical glitch, they said it was symptomatic of larger and more serious support and service issues. Lending the lily of user complaints was the relative inaccessibility of technical support lines, inordinately long hold times on the telephone and the lack of a prompt response to some user issues. Some users are frustrated that they have to wait to discover what the cause is rather than have Gateway inform them when they are discovered.

"It's like chaos," said Bobban Tsuchik, a hardware engineer at Radiady Corp. in Beaverton, Ore. "It's not as if they are doing this deliberately, but they are simply disregarded."

Rare occurrence

Gateway, based in Sioux City, S.D., acknowledged the video glitch but claimed it manifested itself only in "very rare configurations." According to a Gateway spokesman, the company now has a "BIOS fix that takes care of the problem." Affected users could call up technical support and get a free replacement on a case-by-case basis, he said.

"It was told at various times by [Gateway technical support] that the problem was the drivers, that they were using the exact same card without any problems, or that the 'missing strip' was inconsequential," Mah said. In fact, Gateway initially told at least some users that this defect could be fixed by newer versions of device drivers, which inadvertently threw users off track. One user said he went through five driver versions before being told his problem required a hardware fix.

"It is a hard problem to reproduce," said Todd Pike, a systems administrator at the Software Engineering Institute of Carnegie Mellon University in Pittsburgh. "I have used that video board myself with no problem. I would estimate less than 10% of Gateway users even know the problem exists."

Meanwhile, in an apparent effort to address some of these issues, Gateway last week extended its standard warranty on all desktop and minitower models to three years.

Go figure

In a recent survey by PC World, 85% of all Gateway customers

succumbed said one or more components

were not working when

they took their new computer out of the box; 36% of those who

reported a problem did so within the first month of use. Despite these

higher-than-average figures, Gateway's

customer satisfaction ratings were among

the highest in the industry, with 94%

saying they would buy from Gateway again.

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Chicago betas on verge of delivery

By Ed Scannell and Stuart J. Johnston

Users waiting with bated breath for their first glimpse of the new interface in Microsoft Corp.'s Windows 4.0 got a chance to exhale last week.

In a Comdex Spring '94 keynote before a standing-room-only crowd, Microsoft Chairman Bill Gates showed off the work done to evolve the widely used Windows graphical user interface into a more user-friendly environment.

Gates also laid out the latest delivery schedule for Chicago's beta releases and the next version of Windows NT.

Beta 1 of Chicago, which features the new user interface, will ship "within a month." Beta 2 will ship by the end of the third quarter. Micro-

soft still intends to ship the finished product by year's end. "We'll have a lot of fun being challenged to meet that date," Gates quipped.

He also indicated that the upcoming Windows NT Version 3.5, also known as Daytona, will not be available for another "few months," pushing back its availability from June to August or September [CW, May 23].

Users prefer to wait

Most users seemed unperturbed by the delay, saying they would rather be safe than sorry.

"We'd rather have any of these [Microsoft operating systems] be late than come out on time with bugs in them," said Colin Carpi, president of Chartwell Advisory Services, Inc. in Penn Valley, Pa.

Users who feel more comfortable with the 3.1

interface will be able to automatically configure Chicago to look somewhat like the old interface, but it was clear from Microsoft's demonstration that there is no turning back.

The Windows desktop, which under 3.1 was merely an inactive hit map termed "wallpaper," is now an active arena onto which users can drag any program, file, folder or printer they want to use frequently.

Many of the problems that users experience with Windows today, and which Chicago is supposed to correct, are caused by some of the less-than-intuitive features of the interface, such as double-clicking, using the Alt and Tab keys to switch between running applications or not using methods such as "minimizing" a running application.

For example, the main program (Program Manager) and File Manager windows have been replaced by an icon titled "My Computer" and a floating "task" bar that shows what applications are running but are minimized. The bar also has a "start" button that lets users have quick access to frequently run programs and file management tools such as the new "Explorer" tool.

Also in Chicago, when an application is minimized, animations show it being shrunk down to a file tab on the floating task bar, which is typically placed at the bottom of the screen. However, the animations are available only on 486- or Intel Corp. Pentium-based PCs. And while there are new, more intuitive ways to perform operations, the old 3.1 key combinations still work, said Rich Freedman, product marketing manager for Windows 4.0.

To make it easier for DOS users to switch over to Windows, Chicago lets them launch Windows applications from the DOS prompt. Also from the DOS prompt, users can call up a box that lets them create a new file for a Windows application without that application being present. The next time a user activates one of those Windows application, the file can be accessed.

Microsoft's video-on-demand Tiger is years away.

See page 63.



Microsoft's Bill Gates: Daytonia delayed for another 'few months'

More on the way

Microsoft's Bill Gates also demonstrated 32-bit versions of Word and Excel, showing off the multitasking, multithreading capabilities of those applications. He said the company would ship both applications "shortly" after it ships Daytona.

The changes users will see in Chicago from earlier versions of Windows were driven by extensive testing in Microsoft's usability lab, said Rich Freedman, product marketing manager for Chicago. Clicking on the start button and then clicking on a menu item eliminates the confusion many users experience with the concept of double-clicking on an item, Freedman said.

Winning lineup at Windows World Open



Surrounding Microsoft Chairman Bill Gates (center) are the Windows World Open award winners. From left to right, the executives and their companies are: Bryan Hartmuth, Bank of New York; Ted Krenshaw, Mally Mally; Sergio Riquelme, Alcan; Jose Manuel Vazquez, Domino's Pizza of Venezuela; Oates; Lucille S. Ellis-Smith, New York City Office of Pupul Transportation; Steven Bryant, Eastman Kodak Co.; Bob Kasser, the Maltabasset District; and Dan Myrick, Morris Windows & Doors.

Operating systems

OS/2 for Windows release targets low-end markets

By Ed Scannell

IBM last week formally announced the first beta version of the successor to OS/2 for Windows, which company officials hope will provide an entrance into several new low-end markets now dominated by Microsoft Corp.'s Windows.

IBM demonstrated OS/2 Performance Beta 1, Version 2.90, code-named Warp, running multiple applications in 4M bytes of memory — half the current memory requirement — with reasonable speed and performance. The version, slated to ship in September,

was designed to appeal to low-end desktop, portable and home users.

"Many users have held off from buying [OS/2] because of the hardware systems requirements," said Wally Casey, director of marketing at IBM's Personal Software Products Division in Austin, Texas. "With this product, I think we have successfully removed that barrier."

Company officials also showed off a capability new to OS/2 called PlayAtWill. This capability gives users a graphical status report on their PCMCIA sockets and allows them to insert new PCMCIA cards

while their systems are running. It also automatically loads applications that are registered in the PlayAtWill object list.

Smarter functions

Warp also features a much simplified installation method, something that has long plagued both novice and experienced users. The new version does a more intelligent job of identifying the hardware onto which it is being installed and consequently presents users with fewer confusing options, Casey claimed.

Also provided is a slightly im-

10 to 1

IBM announced last week that it has shipped its 5 millionth copy of OS/2, the same week that Microsoft announced it has shipped its 50 millionth copy of Windows. Microsoft is now selling 2 million copies per month through all channels.

proved look featuring a three-dimensional icon for the Workplace Shell graphical user interface. The company also plans to eventually add a dashboard that allows users to better organize applications and operating system resources.

Warp also has a fast-load option for Windows programs and Presentation Manager as a full 32-bit subsystem. It also includes a new DOS setting that lets users better control the amount of system resources dedicated to each DOS application and a color palette with 120 colors compared with the 25 contained in the first version.

Digital demonstrates first DCE support for NT

By Mary Brandel

• Digital Equipment Corp. made much ado about Windows NT at Comdex Spring '94 last week, but while analysts said that makes a good technology story for Digital, it will take some time for users to reap the benefits.

Among the products or technologies Digital demonstrated at the annual show in Atlanta last week were the following:

- A Distributed Computing Environment (DCE) product for Microsoft Corp.'s Windows NT that will let NT clients interoperate in heterogeneous environments.
- Its four-processor 2100 server running the next version of NT, code-named Daytona.
- New third-party applications for NT on Alpha, bringing the total to 553 applications shipping.

The DCE product is significant because Microsoft itself has said it will not include that set of application programming interfaces in its products. Digital is the only vendor so far to provide DCE functionality for NT.

"For those shops that think of DCE as a strategic client/server infrastructure, it becomes a very critical tool for the marketplace," said Lynn Berg, an analyst at Gartner Group, Inc. in Stamford, Conn.

Daytona is important to Digital be-

cause it, not NT 3.1, will run on Digital's 2100 symmetrical multiprocessing box. The 2100, which was released in April, was developed with the Peripheral Component Interface bus, which NT 3.1 does not support.

One questionable factor is how much users need a high-powered server running Daytona. A four-processor server

such as the 2100 will be used mainly for running big databases or applications, and today NT is not the platform of choice for such work, said Jonathan Eunice, an analyst at Illuminata in Hollis, N.H.

"I think it will take some time before people consider a RISC processor to run NT at all," Berg said. "I don't think there's a market just waiting for it."

Just the same, Digital also said it is involved in a partnership with Microsoft and GE Fanuc Automation NA, Inc. to build an NT-based next-generation automobile plant system for Saturn Corp. DCE for NT will be available in June.

PC server vendors turn to clustering. See page 54.

WordPerfect rolls out Office family upgrades

By Lynda Radosevich

WordPerfect Corp. last week said it will deliver 28 new products and 22 product upgrades to its Office electronic messaging and scheduling line next month. The product family will also have a new name—Symmetry—to distinguish it from the myriad other Office applications.

Symmetry 4.1 is said to offer common features such as filtering and scheduling across 12 client platforms, including the Apple Computer, Inc. Power Macintosh and seven kinds of Unix. Broad client support is necessary for building enterprise-wide messaging systems without complex gateways.

"Clearly they have more client and remote client support than the leading LAN electronic-mail vendors," said Heidi Dix, an analyst at Forrester Research, Inc. in Cambridge, Mass.

On the server side, Symmetry includes a feature that permits users to participate in forums and on-line discussions and a module that lets remote users have their messages read to them over the phone. It also runs on several new server platforms such as Novell, Inc.'s NetWare Loadable Modules and IBM's OS/2, according to WordPerfect [CW, Feb. 28].

After their merger in February, WordPerfect and Novell officials said the application is the main front-end piece for their combined groupware strategy.

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IBM beefs up Unix boxes

RS/6000 models boost power, but some disappointed by prices

By Jean S. Bozman

IBM turned on a fire hose of RS/6000 Unix line announcements last week, spraying the market with more than 15 products.

They include four new workstations, seven servers, two- and three-dimensional graphics accelerators, a fiber-channel adapter to support high-speed data transfer and client-server additions to the AIX 3.2.5 operating system.

The announcement gave IBM's uniprocessor performance a notable boost, analysts said. "It pops up their systems and puts them back in the pack," said Dominic Ricchetti, director of worldwide workstation research at Dataquest, Inc. in San Jose, Calif.

Rare power was very much the focus of the introduction. IBM, which has faster uniprocessors than most of its workstation rivals, claimed that its 387 workstation, based on a PowerPC chip, edged out Hewlett-Packard Co.'s 125-MHz HP 9000 Model 735 desktop machine in floating-point performance.

Company executives also claimed that the IBM 560i desksize server outperformed Sun Microsystems, Inc.'s eight-processor SPARCserver 1000 symmetrical multiprocessing (SMP) machine.

However, analysis noted that the HP 9000 735 will best the 387 with a SPECint92 rating of 136, vs. the IBM machine's rating of 114.

Top performance

IBM claimed that its servers surpassed its new workstations as industry-leading performance machines.

The computer giant put its high-end PowerPC chip in two desktop systems, the 3AT and the 387. Until now, IBM had used the PowerPC only in its desksize and high-end parallel servers [CW, May 23]. A new 417 desktop machine is based on an 80-MHz PowerPC 601 chip, as is the new C10 desktop server.

"The leapfrog [in power] was really with the 3AT and 387, while I see the 417 as a catch-up or a place-holder machine," said Laura Siegraval, manager of workstation research at International Data Corp. in Mountain View, Calif.

Yet some analysts said they were disappointed by overall price/performance. "The lowest cost for PowerPC workstations is \$12,000," Ricchetti said. He added that he expects other PowerPC-based RS/6000 client machines — due by year's end — to give IBM a lead in low-end price/performance.

Desktop use

The desktop clients will also be able to run non-Unix software, including IBM's WorkplaceOS, Microsoft's Windows NT and SunSoft, Inc.'s Solaris, Ricchetti said.

Powering up				
A SAMPLING OF IBM'S NEW RS/6000 WORKSTATIONS AND SERVERS				
Product	Processor	SPE Config	Price	
Workstations				
Model 417	80-MHz PowerPC 601	78	\$12,100	
Model 387	67-MHz Power2	109	\$28,300	
Servers				
Model C10	80-MHz PowerPC 601	78	\$12,800	
Model 560i	66-MHz Power2	122	\$74,450	

Pete Bates, vice president of systems at Esprit de Corp. in San Francisco, said he is encouraged that IBM and its RISC rivals are continuing to improve price/performance in a leapfrog fashion. Esprit recently outsourced its IBM 3690 Model 200 mainframe and is building client-server applications for 20 IBM RS/6000 machines [CW, May 9].

"The next time we have to go [a RISC-based] processor, we're going to get a lot more for our money, be it from IBM or Sun or from anybody else," he said.

What IBM lacks is SMP support in its AIX Unix operating system, which makes it the last RISC systems vendor to field an SMP system.

"What we're missing is a very high-end SMP" server, acknowledged William Filip, an IBM vice president and general manager of IBM's RS/6000 Division in Somers, N.Y. He said the next version of AIX, Version 4.0, which is slated to ship this summer, will offer SMP capabilities and will support SMP versions of OS/6000 hardware.

IBM also announced the Power GXT150M 3-D graphics accelerator for \$2,195 and the Power GXT1000 3-D graphics accelerator for \$24,995.

Mips partnership is a RISCy venture

By Jankam Viljanen

Even as Intel Corp. and the PowerPC consortium attempt to dominate market mindshare with their new processors, Mips Technology, Inc. and several semiconductor partners have announced sizable quantities of a 200-MHz RISC processor.

The new 64-bit R4400-200 chip has been clocked running a benchmark suite of standard Microsoft Corp. Windows NT applications at up to 3.05 times faster than Intel's 90-MHz Pentium chips. IBM's R4400-200 is the fourth upgrade of that technology since its 1981 introduction.

Partnering with Mips are NEC Electronics (an affiliate of NEC Corp.), Integrated Device Technology and Toshiba America Electronic Components, Inc.

The high-speed processors are being aimed mainly at the Unix and symmetrical multiprocessing markets, said Basheer Ahmad, product line manager for NEC's RISC processors.

With its 32K-byte primary cache and secondary cache support of up to 4M bytes, the processors have been optimized for Windows NT and other high-end desktop and server uses, he said.

However, analysts were skeptical about the processor's destined market and its ability to compete on price.

"The RISC-based PC market appears to be an 'always tomorrow' kind of opportunity," said Andrew Alon, editor of the "RISC Management" newsletter in Carmel, Calif. "It is questionable at this point when it is going to take off."

SAP America boosts customer support

By Rosemary Cafasso

SAP America, Inc. last week said it plans to bolster its customer support efforts, a step that could prevent a case of growing pains.

"Everyone is strapped for technical expertise, including SAP," said Mike Rood, manager of application engineering at Autodesk, Inc., which last year installed SAP's R/3 set of client-server applications. "The technical people they have are excellent, but there aren't enough of them."

Dwayne Baker, director of information resources at Convex Computer Corp., one of the first North American R/3 users, said he has seen a drop in the quality of SAP's technical support hot line.

"When we put up Phase 1 [in 1993], we didn't experience this at all," Baker said. "Their growth has started to take off, and we anticipated this would happen. . . It depends on the person you get on the hot line. When you get someone fairly new and green, you can have a frustrating situation."

Klaus Besier, president of SAP America, Inc., said in an interview last week that a number of support initiatives are now under way, including a plan to double the number of internal consultants to 400 by year's end.

On-line information

In addition, Besier said SAP is readying a Lotus Development Corp. Notes-based plan that will give customers access to the company's internal Notes databases containing R/3-related data and problem-solving information. Now being tested in Germany, the Notes databases will become available in "four to six weeks," according to the company. Also, SAP just launched an R/3 training/certification program that currently has 100 "students" enrolled from outside consulting firms.

"The ongoing challenge is in keep up with the growth," Besier said. "But this is not a serious problem."

Users and analysts agreed that SAP's current support does not fall into the serious problem category but noted that the company has gone through a huge growth spurt in the past year that could strain its service efforts if not managed.

Growth spurt

Earlier this month, SAP's parent company, SAP AG in Germany, released 1993 financial results that showed it brought in \$185 million in R/3 worldwide revenue last year, compared with \$81 million the previous year. Last year's numbers push it past chief competitors, including Oracle Corp., for a top ranking in the client-server applications market, according to International Data Corp. in Framingham, Mass.

Company officials said the North American customer base grew from 40 late last year to 116 today. Worldwide, its R/3 customers currently number close to 1,500.

R/3 is an integrated set of financial, human resources, manufacturing and distribution software that runs on Unix-based servers. A typical R/3 sale is in the \$1 million range and includes "over a 100 users and a couple of different modules," according to a company spokeswoman.

Jeff Compton, an analyst at Gartner Group, Inc. in Stamford, Conn., said that while SAP's growth "is good in terms of market success, it could also strain the infrastructure." "Because of their unique architecture and proprietary tools, implementation service resources are scarce," Compton added.

Dirty tricks

SAP's client/server software is the subject of a study memo that denigrates its technology. The memo, postmarked from the San Francisco area, includes a return address marked only as "Deep Throat." Last week, SAP officials speculated that its chief rival, Oracle, was the source, but an Oracle spokeswoman denied it.



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HP agent monitors multiple network resources

By Stephen P. Klett Jr.

Hewlett-Packard Co. last week extended the boundaries of its performance-management software agent beyond the realm of Unix-based workstations to include management of data from any network resource, including applications and databases.

Industry analysts said HP's PerfView 3.0 takes a big step toward easing the task of managing large enterprise networks.

"Right now users have to write hundreds of shell scripts to manage every little thing on their networks; products like this will help eliminate a lot of this nonsense," said Jill Huntington-Lee, principal

analyst at Brandywine Network Associates in Clamamison, N.J.

By combining network, systems and application management under one umbrella, PerfView 3.0 eliminates the need for separate tools to manage each of these resources. Therefore, users need buy only one \$20,000 tool instead of three or four and may no longer need a techni-

cian at remote sites.

PerfView 3.0 is based on a technology called data source integration (DSI), which opens PerfView's systems performance-management capabilities to include any resource, said Jim Grant, product marketing manager at HP, in Roseville, Calif.

DSI uses the remote procedure call (RPC) protocol to provide access to the metrics needed to manage distributed environments, letting users specify what data to collect from different subsystems, databases and applications.

When user response time slows, potential contributing elements can be graphically displayed to help administrators quickly find the cause, Grant said. PerfView generates alarms when preset thresholds on individual resources are exceeded.

When PerfView is integrated with HP OpenView Operations Center — HP's systems management platform for distributed environments — the performance of all distributed resources can be managed from one workstation, HP said. While Huntington-Lee said centralized management was extremely useful, she questioned HP's use of the RPC protocol rather than the Simple Network Management Protocol (SNMP).

"If you decide down the road you don't want to use OpenView, you're stuck, because [PerfView] isn't SNMP-based and can't talk with other platforms," she said. "HP doesn't seem to be following the path of a good citizen of SNMP, which is where the industry is heading."

She said agents such as iView from Independence Technologies in Fremont, Calif., OS/2 Eye Node from Digital Analysis Corp. in Boston, Mass., and Trapper from Network Partners, Inc. in San Jose, Calif., provide similar functions using SNMP.

Application support

Mead Data Central, a provider of on-line information services in Munningsburg, Ohio, uses Operations Center and PerfView to centrally manage information generated by MVS and Unix systems from HP and Sun Microsystems, Inc., as well as its own end-user applications.

"Until now, management vendors have not taken into account users' own applications," said Daniel R. Hurb, a systems engineer at Mead Data Central. For example, users can customize DSI to gather any application data they see fit, he said.

PerfView 3.0 comes bundled with OpenView for \$25,000. A stand-alone version costs \$11,000.

One view

"We have a strategy called 'single piece of glass,' which stands for the goal of managing everything — all of our systems and business applications — from a single workstation," said Daniel R. Hurb, a systems engineer at Mead Data Central. PerfView 3.0 allows Mead to make that strategy something we can implement today."

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Working Together

HP 3000 systems enhance open features

By Mark Halper
PALO ALTO, CALIF.

Hewlett-Packard Co. next week will give users reasons to pause before labeling the HP 3000 a proprietary machine.

With the introduction of the minicomputer's MPE/IX Version 5.0 operating system, HP customers say the vendor

will push the 3000 well into the open world through enhancements in MPE's Posix books.

Posix is a set of IEEE operating systems standards based on Unix. MPE/IX's Posix compliance has been limited, but Version 5.0 will add Posix-prescribed user and programmer interfaces.

The new Posix books will enable the

3000 to understand Unix commands without running through what has been a time-consuming translation process on Version 4.5, said Isaac Blake, technical support and systems manager of the city of Tempe, Ariz.

Other users noted that improved Posix features will greatly reduce the effort of porting Unix applications to the 3000 and

vice versa. "In terms of HP being really Posix-compliant, this is the first realization I've seen of that," said Roger Lindquist, manager of business systems development at Bio Rad Laboratories, Inc. in Hercules, Calif.

With the Posix additions, HP will take a step toward what many users say is a long-term goal of combining its HP/UX Unix operating system and its "proprietary" MPE/IX into one environment.

"HP is not coming out and saying they're putting the two together, but there's a strong inference there that they will," Blake said.

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HP opens up

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- Posix user interface
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- Apple's AppleTalk networking protocol
- IBM's SNA/Token Ring
- Oracle 7 and Ingres 4.0

Dana Brown, chief information officer at Foundation Health Corp. in Rancho Cordova, Calif., pointed out that although Version 5.0 represents significant Posix strides, a user might still incur performance degradation running a Unix program on MPE/IX. Also, MPE/IX still requires different physical connections to Unix terminals than does HP/UX.

Making strides

All that could improve over time, Brown added. "If the user community makes use of Posix, it will apply pressure to HP to improve performance and functionality," Brown noted.

HP's 3000 line of minicomputers has been known for outperforming the HP 9000 Unix offerings because MPE/IX is more finely tuned to HP's PA-RISC microprocessor than is HP/UX. Users regard the 3000s as highly reliable, easy-to-manage workhorse transaction processors.

But Unix machines have become HP's big minicomputer sellers because of their compatibility with other vendors' platforms. HP 3000 sales have slowed accordingly, and the installed base stands at around 67,000, according to estimates from Computer Intelligence/InfoCorp.

An HP spokeswoman confirmed that HP will introduce Version 5.0 next week, but she declined to comment about any plans to combine operating systems.

The release includes a number of features that should also help tie the 3000 into the client/server world, such as support for Microsoft Corp.'s Open Database Connectivity and for Apple Computer, Inc.'s AppleTalk networking protocol.

HP upgrades Allbase/SQL. See page 69.



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Superhighway

CONTINUED FROM PAGE 1

Across vertical industries ranging from health care and entertainment to financial services, companies are girding for a future in which past models of commerce and collaboration with customers will be radically changed.

Health care

One of the most promising uses of broadband networking is in the health care field, where medical facilities need a lot of bandwidth to send large imaging files (such as X-rays) so doctors in remote locations can consult with specialists across the country.

Earlier this year, for example, First Lady Hillary Rodham Clinton watched a demonstration of one of these "telemedicine" applications at Syracuse University in upstate New York. Using Nyx Corp.'s Asynchronous Transfer Mode (ATM) network, pediatric cardiologist Dr. Frank Smith was able to consult with another doctor some 50 miles away as they simultaneously viewed an ultrasound image of a child's heart.

Kaiser Permanente Health Plan, Inc. in Rockville, Md., a mid-Atlantic unit of the giant health management organization,

is interested not only in telemedicine but also in delivering multimedia services to the examining room and even the patient's home. Already, the firm is working with Bell Atlantic Corp. and Oncore Corp. to develop such applications [CW, May 2].

TV treatment

John Dewey, manager of clinical IS for Kaiser Permanente's mid-Atlantic region, envisions using interactive TV to educate consumers about their treatment, in part, to make sure they follow recommended therapy.

Dewey also hopes to see a wall-size, flat-panel touch screen in the examining room that would allow doctor and patient to review the patient's medical record, compare it with the medical literature and find out electronic forms.

Yet Dewey asks, "How can we spend the money on innovative technologies when the federal government is ratcheting down the available funds?"

Meanwhile, from California to Delaware, regional clusters of hospitals, insurers and regulators are building "community health information networks" for the exchange of insurance claims and medical records. One example is the fiber-optic ATM network that Ameritech Corp. built for seven hospitals in the Dayton, Ohio, area, which will go live this month and electronic medical record applications this summer.

Ultimately these community networks may have a data repository that regulators can use to create "report cards" on the quality of patient care. This would be good news for some medical facilities and bad news for others.

News and entertainment

Despite the publicized unraveling of the Bell Atlantic/Tele-Communications Inc. merger, there is widespread confidence that interactive TV will be one of the first points of entry onto the information highway. Media companies, in particular, are watching events closely.

Turner Broadcasting System, Inc. in Atlanta, for instance, is testing networked multimedia products and exploring partnerships with major telephone companies.

"Everyone is very interested in getting our content for their trial systems," said Chief Information Officer Elabe Hossainfar. Turner owns CNN and several other news operations.

Interestingly, Hossainfar said a more pressing focus is redesigning Turner's own video, data and voice network. "Our internal network today is not well-designed or well-built," she said. Before Turner provides first-



Turner's Elabe Hossainfar: A pressing focus is redesigning Turner's own worldwide network

appear to take advantage of this infrastructure.

Consider the case of Spectradyn, Inc., which now duplicates more than 45,000 videotapes and sends them to 2,500 hotels on a monthly basis. It has turned to Electronic Data Systems Corp. to build a compressed digital video network.

A fresh selection of movies could be tapped across such a network on an overnight basis at a significant cost reduction, said Al Jérôme, president of the Richardson, Texas-based company. Furthermore, the digital network will allow Spectradyn to expand its pay-per-view market beyond hotels to include hospitals, large apartment complexes, military housing and schools, Jérôme said.

Newspaper of the future

Even so, some media outlets are hedging their bets about the information highway.

For instance, Roger Fidler said he thinks the electronic newspaper of tomorrow will look more like an Apple Computer, Inc. Newton or Sharp Wizard than a souped-up, 500-channel TV set. As director of the Knight-Ridder Information Design Laboratory in Boulder, Colo., Fidler said the much-heralded "infobahn" is by no means the best or only way to deliver on-line newspapers to readers. Far better suited for the task, he said, will be lightweight, portable devices able to capture information sent via radio waves or fiber-optic links.

All this is not to say that Fidler or the \$2.6 billion media and information conglomerate are ignoring interactive TV.

Since mid-1992, Knight-Ridder has entered a half-dozen ventures aimed at profiting from the \$3.8 trillion multime-

Controversy over 'electronic redlining' rises

The debate over universal access to the information superhighway heated up last week as a coalition of consumer and civil rights groups urged the Federal Communications Commission to outlaw alleged "electronic redlining" by local telephone companies that are starting video service trials.

The coalition, which included the Consumer Federation of America and the National Association for the Advancement of Colored People (NAACP), charged that some of the early plans set for Denver, Chicago, Washington and parts of California appear to bypass low-income neighborhoods with minority populations.

"Redlining within the telecommuni-

cations industry is a front-line challenge to the civil rights community and must be addressed in the national telecommunications legislation now before Congress," said Wade Henderson, director of the NAACP's Washington office.

The regional Bell holding companies vehemently denied the charges.


US West called the allegations "self-serving and dishonest" and said its video network will cover a cross section of different household incomes. Bell Atlantic said it is focusing on six urban areas with high minority and low-income populations.

"We do not plan to 'skip over' communities," said Steve Harris, a spokesman from San Francisco-based Pacific

Bell, which pledged to support universal access and connections to public schools and libraries.

Harris said the company upgrades its network first where aging facilities need replacement and where demand for new services is high and then expands from there. "We'd love to bring the superhighway to all communities overnight, but that's a little bit like wishing California's entire freeway system could be rebuilt within a year," Harris said. "It's just not feasible."

The consumer coalition's petition said that "vague promises of future expansion are insufficient" and equitable representation of low-income and minority neighborhoods is necessary from the start. — *Althea Betts*



dia industry. The media giant is also exploring ways to deliver news and advertisements over Bell Atlantic's new Star-Gazer interactive TV service, scheduled to debut next year.

Yet the new ventures reflect a caution befitting Knight-Ridder's first disastrous venture into multimedia in the 1980s with Viewtron. By the time it was killed in 1986, the pioneering home news and shopping system had lost \$50 million. Company officials are determined to avoid a repeat disaster. Their strategy: Focus mainly on offering existing products on-line.

Retail and services

Close on the heels of news and information providers are the nation's retailers and service providers, which see the coming broadband networks as a way to reach customers.

Denny Chittick, vice president of IS at Insight Direct, Inc., a \$200 million computer products mail-order company in Tempe, Ariz., deems the provision of on-line links to customers as "a huge competitive issue."

Insight expects this form of access to be the greatest growth opportunity for the company, which this month is setting up an Internet node that will allow customers to check on everything from product price and availability to their invoice history.

"We're designing this capability now, with the first stages to be done in 90 days," Chittick said.

At Hyatt Corp. in Chicago, the information highway looks like "the world's greatest distribution channel," said John Bugge, chief operating officer of Rancage Systems Solutions, Inc. "For five years we've been trying to make our product as accessible as possible."

But Bugge also sees the revolution in perspective, noting that electronic sales and booking of hotel rooms, which was nearly nonexistent a decade ago, is now 30% of the industry's business.

Still, this business does not target the general public; Hyatt cannot offer a generalized, electronic service because no network provider offers such a thing. "No one has said, 'Just hook up to this and you can sell hotel rooms,'" he said.

However, the hotel giant is already working on front-end software for allowing intuitive access into its reservations systems. Hyatt is testing a map-oriented interface called Taxis that contains maps of major cities as well as hotel and restaurant reviews.

Financial services

Financial services firms are likewise interested in the highway as a means of commerce.

At BankAmerica Corp., such interlinked networks suggest spontaneous electronic data interchange available on a multilateral basis across industries and regions, said Bob Winn, vice president of global payment services and head of strategic planning at the bank.

But others in the industry are more cautious, worried that the highway could become a worthless drag race.

"My concern is with increased access you may have more fraud," said Gordon Martin, product manager for Address Information Management Service (AIMS) at MasterCard International in New York.

"Increased flexibility also means increased exposure. Crooks are very smart, very sophisticated," she added.

AIMS is a new MasterCard product targeted at mail-order companies. The mail firms compile different databases to produce a comprehensive list of high-risk addresses that can be checked interactively while the retailer is completing a telephone sale.

Such safeguards to transaction services will be essential to the on-line information highway, agreed Mark Vogel, vice president and head of on-line consumer financial services at Bank of America.

Along with a need for transactional services, banks will add value with a "variety of authentication services," he noted.

"Because we are a major bank-to-bank and bank-to-consumer bank, we are most likely to know both sides of the transaction," Vogel said. "A major part of this infrastructure will be its levels of security and authentication."

Written by CW staff Ellis Booker, Milt Betts, Gary H. Anthes and Joe Maglitta.

Vision grows sharper

Federal report describes 'Open Data Network'

By Gary H. Anthes

The much-hyped but ill-defined data superhighway snapped into sharper focus last week with the release of a report sketching out a picture of an "Open Data Network" patterned after the Internet.

The National Research Council's (NRC) 235-page report on "Realizing the Information Future" hails from a blue-ribbon panel of industry, government and university network experts such as David D. Clark, a senior research computer scientist at MIT.

"I have a pile of [National Information Infrastructure] vision statements on my desk, and it's getting bigger and higher," Clark said last week. "But networks aren't built out of vision. They're built out of wires and switches."

While the NRC report does not say a great deal about wires and switches, it does detail a level of technical specificity not seen before on information highway road maps.

The expert panel suggested a familiar network hierarchy in which applications such as electronic mail would sit on top of middleware, such as security or naming services. The middleware is layered on top of transport services such as those provided by the TCP. At the bottom rests various network technologies such as frame relay or wireless.

But the panel recommended development of a crucial new layer called the bearer service that would help ensure openness by isolating the network technology from the high-level services seen by users. The bearer service is analogous to the IP used by the Internet to sep-

arate higher-level services from the underlying transport technology.

This new layer would allow applications to specify necessary service characteristics, such as reliability, timeliness, correctness and bandwidth.

For example, a videoconferencing application might require immediate delivery but tolerate some data loss, whereas a file transfer might require 100% accuracy but not care about delay. However, the ability of an application to specify its delivery demands to the bearer service contrasts with the Internet, which offers only best-effort data-packet delivery.

Can't rely on the market

Leonard Kleinrock, chairman of the NRC committee and the computer science department at the School of Engineering and Applied Science at the University of California in Los Angeles, said that market forces alone cannot be relied on to come up with an open data network architecture — one that is open to users, service providers and change.

Kleinrock said service providers are reluctant to make substantial investments in features that support openness, and that Uncle Sam should work with the industry to find economic incentives for providing those features.

The Internet provides a useful model, he added. "The basic lesson of the Internet is that it's an open architecture that works."

Internauts can receive the report electronically from the National Academy of Sciences at gopher.nas.edu orftp.nas.edu.

Beyond the Internet

If the information superhighway is defined as a ubiquitous, easy-to-use, high-speed network for businesses and individuals, then the Internet is surely not it.

But it certainly is enormous, with roughly 22 million users worldwide. The number of networks connected to the Internet backbone, the NSFnet, grew 100% last year and includes

some 32,000 networks in the U.S.

Apart from its size, the Internet has never been lauded for ease-of-use or security. That is changing, however, as advocates race to make it more suitable for commercial traffic.

Two of the most important commercial initiatives recently launched on the Internet are CommerceNet and the Enterprise Integration Network. Both attempt to provide better directory structures, security systems and transaction services than have been previously available. —Ellis Booker

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Computer Industry

Briefs

Merger in Mac arena

Radwin, Inc. in San Jose, Calif., and Supermac Technology, Inc. in Sunnyvale, Calif. — the No. 1 and 2 suppliers of graphics cards for Macintoshes — last week agreed to an \$80.5 million merger. In their most recent fiscal years, the firms had combined sales of \$337.4 million and losses of \$29.1 million.

Tandy opens shelves

Tandy Corp. last week said it will sell competing brands in its Radio Shack retail stores. The change kicks off with the stocking of two of IBM's PS/Notebook models in 500 Radio Shack stores and IBM PS/1 desktop PCs in some retail stores.

Dell racks up profits

Dell Computer Corp. announced a profit of \$18 million on sales of \$794.6 million for its first fiscal quarter ended May 1. Despite a \$20.3 million charge related to interest-rate derivatives and investments, Dell's gross margin as a percentage of sales rose to 22.2%. Founder Michael Dell attributed the growth to a strong demand for Pentium-based servers and PCs and lower costs resulting from manufacturing improvements.

HP profits slow down

Hewlett-Packard Co. last week warned financial analysts that the rate of orders and revenue is slowing in its third quarter. It predicted that revenue in the second half of the year might drop from the \$18.7 billion recorded in the same period last year. Analysts were not alarmed. Robert Herwick, president of Herwick Capital Management in San Francisco, noted that third-quarter growth should be in line with long-term growth of 15% to 20%. Still, the market reacted in its usual knee-jerk fashion. HP's stock fell 3% points before recovering and closing down just 1 1/2% on Wednesday, the day of the announcement.

Lotus takes possession of Notes

By Lynda Radosovich

After seeing his vision of groupware come to fruition, Ray Ozzie, widely known as the father of Notes, will rejoin Lotus Development Corp.

Last week, Lotus said it will purchase Iris Associates for \$64 million in Lotus common stock. Ozzie formed the 10-year-old Westford, Mass.-based research and development company with seed money from Lotus and is Iris' majority owner.

Iris provides all of Notes' core engineering and works solely on Notes or Notes-related products. Initially, Lotus was just an investor in an idea that Ozzie wanted to pursue but expanded its interest by acquiring exclusive rights to Notes in 1988. Lotus formally launched Notes in December 1988.

Royal payee acts

To date, Lotus has spent nearly \$200 million in Notes, including development, marketing and support, said Jim Manzi, Lotus' president and chief executive officer. Although Lotus paid Iris undisclosed development costs and owns the Notes source code, under that marketing agreement it had to pay royalties to Iris on every box of Notes sold and did not have an ownership

stake in the company.

According to Manzi, the acquisition became inevitable as Notes infused its way into other products such as Lotus' desktop applications and a service network that will result from a recently announced Notes/AT&T Corp. relationship.

While at Comdex Spring '94 last week, Lotus Chief Technology Officer John Landry justified the \$64 million price tag by noting that the elimination of royalty payments will significantly benefit the company's bottom line.

Wall Street analysts reacted favorably to the announcement, agreeing that it will help Lotus halt royalty payments.

Manzi did not say what those royalties were, but industry sources estimated they were around 10% of the Notes royalty stream.

Manzi did say the deal will not affect Lotus' 1994 revenue but estimated that it will add 5% to earnings in 1995.

"That's very conservative, and you'll likely see significantly more than that,"

said Terrence Quinn, an analyst at Fulman Seltz in New York.

In November, Lotus renegotiated a Notes sales and marketing deal with IBM that eliminated an estimated 50% royalty to IBM on every box sold. In total, Lotus is now saving 40% on Notes payment, Quinn noted.

As a result, Quinn projected that Lotus would see \$250 million to \$300 million in 1994 revenue from Notes alone, compared with roughly \$100 million in 1993.

Under the terms of the deal, Iris will operate as a wholly owned subsidiary of Lotus, and Ozzie, who will remain president of Iris, will report to Jeff Papow, Lotus' vice president of Notes product development. Ozzie said the deal will have no effect on Notes development or Iris' day-to-day operations, adding that he is "in no position to leave" the product that he has worked on for 10 years.

Should you use Notes Mail? See page 51.



Ray Ozzie, father of Notes

Financiers entertain N.Y. start-ups

By Thomas Hoffman
NEW YORK

In an attempt to foster the development of several fledgling New York-area software developers, a group of industry supporters played matchmaker for the first time last week, uniting venture capitalists with 16 vendor companies whose outfits are long on technology but short on resources.

The Advanced Technology Business Assistance Team (AT-BAT) Software Enterprise Forum formed under the sponsorship of the New York City Partnership and the New York Chamber of Commerce and Industry. Participating advisers in the forum include Price Waterhouse, IBM and Dewey Ballantine.

"Technology is a critical industry for New York to add to its economic base," said Richard F. Kelenka, an AT-BAT adviser and executive at Price Waterhouse.

Kalenka said the field of 16 vendors invited to present their business plans to investors would be narrowed to eight to 10 finalists by mid-June. However, Kelenka added that dialogue among the investors and vendors was welcome.

Soft money

Software and services firms nationwide received \$432 million in venture financing for the first half of 1993 — 26.1% of the \$1.66 billion in total disbursements for the period, according to Venture Economics Publishing Co., a New York-based researcher that studies U.S. venture capital markets.

New York failed to reach the Top 20 among states securing investment funding during this period.

John F. Henry, president of Republic Funding Corp., a New York-based investment bank, said his organization mailed letters to nine of the 16 participants immediately following the conference.

"This type of conference was sorely needed. It provides investors with a platform to explore new opportunities," Henry said.

Last week's forum provided smaller niche-oriented software vendors with an opportunity to strut their wares and catch the attention of would-be investors.

Meet the banker

AT-BAT "seems to be a good opportunity for software firms to present themselves to the financial community," said Kent E. Lawson, president of Magna Software Corp. in New York.

His company's latest venture is its Magna-X package, a Unix-based application generator that was designed to support Tuxedo, Novell, Inc.'s distributed on-line transaction processing monitor.

Another potential beneficiary of AT-BAT is Professional Software Systems, Inc., a 10-year-old privately held New York developer. Professional Software Systems is

marketing Ad/Ad!, a client/server-based package targeted at advertising and public relations agencies.

Although Professional Software is about to begin beta-testing the software, it would be difficult for the \$1.6 million firm to make-market the package next year on a shoestring budget.

Right place, right time

"It's prime time for our company. Advertising firms are just starting to come out of their mainstream-based service bureau mentalities and re-engineer their operations, so the timing on the product release couldn't be better," said Mary Brosnan, president of Professional Software.

AT-BAT seems to have stepped in at a critical time. A small percentage of industry participants managed to thrive in New York's congested, tax-burdened region — most notably Computer Associates International, Inc. and information Builders, Inc.

However, most area companies have either struggled to stay afloat or been forced to relocate to friendlier surroundings such as California's Silicon Valley.



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In Touch with Tomorrow
TOSHIBA

Back to school

A couple of years ago, we at *Computerworld* attempted to do what proved to be impossible—donate some used computer equipment to a local school system.

It wasn't that the system was overloaded with PCs and software. On the contrary, school systems throughout this state and others have for years labored under various budget constraints as well as federal and state aid cuts.

The problem was we just couldn't find anyone willing or able to take on the responsibility of doing something productive with the equipment. They lacked the training and the time.

Some communities, such as the one where EMC Corp. has its headquarters, have benefited from extraordinary gifts from local vendors. EMC has outfitted local schools with a superb network and peripherals and has also supplied training. Largesse like that, however, is the exception.

No one can doubt the degradation of this country's public education, which by some measures is declining. The reasons are complex, and I am not suggesting that computer education is a major part of the solution to a growing national disgrace. But certainly a computer can be a wonderful teaching tool.

There are two very important roles that the thousands of you IS professionals can play in directly striking a blow against the decline in public education. And neither will cost you a red cent in taxes.

First, *Computerworld* has spearheaded the national Computers for Classrooms effort, which has already resulted in the placement of thousands of unused PCs, peripherals and software packages in local schools. Instead of tossing the equipment or getting cents on the dollar, your company, division or department can give schools a proven teaching aid and earn a tax deduction in the process.

You can contact your school district directly or call (800) IS-BUDGET for more information.

Equally, if not more important, the schools and students need your expertise. Our sister publication, *Macworld*, published a cover story two years ago about millions of dollars worth of donated equipment lying idle at schools, due in part to a lack of skilled instructors.

Most school districts have either very limited computer instruction available or none at all, at least at the elementary and middle school levels. Thus the value of time donated by IS professionals working directly in classrooms is incalculable.

Moreover, those who have given their time in this way (myself included) have found that it can be as rewarding as any other part of the work week, corny as that may sound.

More bluntly, we can sit around and bitch about the "education problem" with its tumbling test scores and the rising illiteracy rate, or we can motivate ourselves to actually do something directly about it.

Bill Laberis

Bill Laberis, Editor in Chief
Internet: blaberis@cw.com



'Abstinence' a bad analogy

Jeffrey Henning's column "PowerPC not living up to promise" (CW, May 16) declared Apple's nervous regarding the Bedrock package to be "like a parent teaching abstinence rather than recognizing the reality of what was going on behind its back." There are many differences.

Most significant is the fact that the Macintosh and Windows are perfectly valid and desirable platforms for development. You are not likely to pick up a sexually transmitted disease because you played around with Windows.

On the other hand, abstinence is the only way to guarantee avoiding such things. Attitudes such as those exhibited in your article only help spread the misinformation that "sex is OK anytime, anywhere, as long as you use a condom."

I do think, however, that Apple's failure to push some cross-platform tool was a mistake.

Brad Andrews
Westerville, Ohio

OS/2 boom isn't likely to come soon

I disagree with the conclusion of "OS/2 desktop hopes dim" (CW,

May 9). Buried at the end of the article is a projection by International Data Corp. that OS/2 is expected to sell 5 million copies this year, doubling its installed base and increasing its market share to 25% of Windows' reputed 40 million copies.

Users don't (and shouldn't) care about 32-bit applications — "32-bitness" is a consideration for developers. Users are concerned with functionality and integration of applications. While many new OS/2 users are content at first to run Windows applications, they soon demand applications that use a scripting/macros language, allow full use of drag and drop, permit long file names and use standard OS/2 help facilities.

I will gladly scrap all of my Windows applications as soon as I am able to replace them with comparable native OS/2 applications. I believe most of the growing base of OS/2 users feel the same.

Peter Flass
Athens, N.Y.

Test software; not programmers

Your article on certifying computer programmers ("Industry debates certification," CW, May 2) neglected to explore the fundamental problem with bug-ridden software: software manufacturers.

In the past few years, we have had to contend with an alarming number of software bugs and bug fixes. Software companies need to get their defective products out on the market simply to match their competitors' releases. The com-

panies profit, but the customers suffer.

Although the idea of certifying programmers merits attention, a better solution would be independent testing and certification of software, something like Underwriters Laboratories testing. If mechanical and electrical devices need to be tested, why not software?

Audria Dwendia
Chicago

The most interesting part of your cover story on licensing computer professionals was the sidebar featuring five sample questions from the Institute for Certification of Computing Professionals. They illustrate the difficulty of creating a practical test that competent software engineers will pass and incompetent software engineers will fail.

I haven't seen the entire test, but the five sample questions were as inside and irrelevant that I'm very skeptical about the rest of the test.

Colin Outley
Ann Arbor, Mich.



Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 917, 375 Commonwealth Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MO Mail: 279-6273; Internet: letters@cw.com. Please include a phone number for verification.

Viewpoint

Choose Cobol, not C, for understandable coding

Jerry Sitner

For some time now there has been a migration by companies from Cobol to C or C++. This is possibly the most serious mistake in IS history.

User investigation into the cost-effectiveness and productivity impact of this move is practically nil. The impetus comes from a "follow-the-leader" syndrome. In fact, what limited investigation was done showed more negative than positive aspects. Yet the insidious migration continues.

For the overwhelming majority of companies, stopping this migration is not only possible but inevitable once they see the tremendous programming quality and productivity potential of Cobol over C. Cobol, because it is an English-based computer language, was developed with one major objective: to create

Though many in our industry have difficulty defining program quality, it's really quite simple. The following are six benefits attributed to program quality:

- Less time is needed to test and debug.
- Less time is needed for maintenance tasks.
- Bugs are more likely to be detected during

- It is easier to recognize unnecessary functional complexity.

- It is easier to recognize inefficient coding.
- Specifications will most likely be met.

However, one factor more than any other will have a positive effect in achieving all six of these benefits: clearly understandable coding. This is true for all computer languages, but is especially significant for Cobol because it is the most conducive to coding understandability. Even though no known IS manager has taken advantage of that potential, Cobol cannot be faulted. The blame is on the so-called "experts" who tout the quick-coding concept over the clarity-coding concept.

Quick coding is a productivity misconception that has haunted IS from its beginnings and can only be counterproductive. Insistence of clearly understandable coding is an absolute necessity.

No comparison of quality or productivity has ever been made between Cobol and C when the Cobol program tested was written using the clarity-coding concept: Clearly understandable coding is the key to programming quality and therefore productivity. There is no doubt the results of such a comparison would be overwhelmingly in favor of Cobol. The few

times Cobol and C were compared, the Cobol coding was created with the quick-coding misconception. Even with that disadvantage, the poorly understandable Cobol outperformed C in all but a few areas. Any company that migrates from Cobol to C without an evaluation based on reality instead of misconceptions may make the most counterproductive move *ever*.

History has shown that Cobol is more than capable of handling practically all business applications and to acquire its mature New methodologies such as object-oriented technology or, older methodologies such as structured coding, although they have worthwhile possibilities, will not have meaningful positive effects on programming quality or productivity unless they include in their methodology an insistence on clearly understandable coding. Failing to accept that truth will assure IS of 35 years of similar failures.

Sitner is president of Clarity Concept Systems, in New York.

Forms should follow function

Michael Schrage

Back when I was a wage slave in the Fortune 500, I once had a \$2,050 expense report rejected because — foolish me — I had *adapted* receipts to the form instead of using a paper clip. Ever since, I've been fascinated by the perverse pathologies of bean counters and have amassed a sizable collection of expense forms from companies worldwide. An expense form — and all the slypecky rituals that go along with it — can reveal a lot about a company.

Logically, these paper-based pests from bureaucratic hell would seem to be ideal candidates for digital capture. The expense form should be one of the first casualties to the astonishing rise of E-mail, LANs and groupware. But for all the sermons about re-engineering, workflow and EDI, only a handful of organizations today let their employees file their expenses on-line. It's bizarre.

Digitizing this process should be a compelling win. The logistics, economics and convenience reasons are all there. Filling out a prompt-based, PC-based expense form would be quicker and more efficient. Filing on-line

would make consolidation and aggregation a snap; accounting could easily map expenditures to budget and spot emerging T&E trends. Software auditing agents could be programmed to identify and kick out exceptional expenditures and notify the appropriate managers. Tax preparators could also become a breeze.

So why isn't everyone doing this? The usual answers, business, culture and inertia. There are no legal or technical reasons why virtual reality expense formulas couldn't become the smartest administrative innovation that bean counters have implemented in many years. The problem is that this isn't the way most organizations think. They are caught up in the management of information.

Admittedly, the workflow mind-set has begun to make organizations more aware of the differences between necessary routines and bureaucratic encrustation. But still, too many companies behave as if organizational artifacts like expense forms are the by-products of processes rather than process drivers.

faces — to organizational processes. That's what a spreadsheet is; that's what a budget request is. As enterprise-wide networks proliferate, the future of forms becomes the future of interfaces and the future of interfaces becomes the future of forms. An on-line form doesn't have to look like its paper-based ancestor. Forms can become more dynamic and woven into the fabric of the process, whether that process is a bill of lading or a customer service inquiry.

Even the most casual glimpse at, say, a Lotus Notes form reveals a tremendous diversity of designs, reflecting how organizations use forms to structure processes, not just the information that goes into them. So one of the biggest challenges for MIS is going to be striking a balance between giving end users the tools to design and manage their forms vs. designing these process interfaces with them.

Form-building software is now spilling into the marketplace at an accelerating rate. By integrating those interfaces into networks and building networks that facilitate forms management requires software architects who are as sensitive to business processes as they are to database management. Perhaps we should make them put their expenses on-line first.

Schrago is a fellow at the MIT Sloan School Center for Coordination Science. His Internet address is schrago@media.ash.media.mit.edu.

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Desktop Computing

HACKERS MEET GEARHEADS AT THE
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NEW PRODUCTS, 66

Product propaganda battle rages on

Users grow intolerant of unreliable first releases; vendors continue to promise more than they give



By William Brandel

So you're getting ready to roll out that new desktop environment you promised way back when and suddenly you read that your vendor has changed the product's delivery date. Or you receive the product and it is missing a few key features. Or it just doesn't work as advertised. What do you do?

Don't get mad. Consider your options.

While slipped delivery dates and buggy first releases have become the norm for PC and LAN managers, these occurrences do not sit well with the senior-level information systems audience accustomed to punctual products that are relatively stable. And while departmental managers respond by being innovative and quick on their feet, senior IS managers must rely on their own methods to deal with dissatisfaction.

Get it in writing

"You have to make the vendor understand that there are ramifications," said Leifani Allen, vice president of information technology at PNC Mortgage in Vernon Hills, Ill. "The first time around I give the vendor the benefit of the doubt. But the second time around I will get a written declaration of what is in there and hold the vendor to it."

This is not a case of users being unsympathetic to the development complexities software publishers face. As technical professionals, users know well that products are more complicated today because of the list of software requirements. PC software must run over a variety of platforms, support various protocols and, at the

same time, be graphical and easy to use. For this reason, the development cycle has become more complicated.

But business is business. Users also have to meet deadlines with technical, complicated projects. And they often have to rely on software that is late or buggy to achieve their goals.

"I [can't] introduce buggy software to a community of a few hundred or few thousand, then vendors shouldn't be able to deliver it to tens [of thousands] or hundreds of thousands," Allen said.

While users often have to deal with the delays and bugs, it is the vendors that will ultimately pay the price for their malady, users say. As first version, "point-of" software receives an increasingly bad reputation with users, managers are taking the advice of a former First Lady: Just say no.

"When something brand-new is coming out and they're late, it doesn't affect me," said John Fulwood, system support specialist at MasterCard International in New York. "I'm not trying to be the first on my block. We don't have the manpower to be guinea pigs."

But vendors still seem to expect users to accommodate them. The heated competition among software vendors has created a double-edged sword. Competition creates more choices and has been successful in lowering prices for software. However, it has also driven some vendors to try to one-up one another with promised dates and undeliverable features.

It has almost become the industry norm that a software package will be stable in its second release, not its first. Even upgrades to products require interim releases, or bug fixes, so that the application will as promised.

The heated competition among software vendors has created a double-edged sword.

While users are growing increasingly intolerant of unreliable software deliveries, the promise game is still an effective competitive play for vendors. Gartner Group, Inc., a consultancy in Stamford, Conn., found that the marketing campaign for Microsoft Corp.'s Windows NT was effective in getting IS in hold off on IBM OS/2 purchases, starting a full year before NT was announced or shipped.

Fear of decisions

"FUD [fear, uncertainty and doubt], when skillfully used, will freeze an organization on its strategic platform decision," said Carter Leubke, program director of personal computing at Gartner.

Analysis and users know ship dates slip. However, they want realistic delivery timetables and solid applications they can depend on.

"The reality in corporate America is that people spend a lot of money and time on software," said Patricia Tate, executive director of Technology Forum, Inc., a user group based in New York.

For planning purposes, users want information on new products and do not like surprise products or features sprung on them. Tate noted. However, these same users resent having their trust exploited by a vendor.

With growing price/performance competition among products, it is unlikely users will remain tied to any one vendor that does not meet their requirements. And like a bad restaurant, vendors could face the same fate if they serve up bad software.

"I could just let my peers in the industry know what I've been through," Allen said. "It's important to inform your peers, and it is important to let vendors know they are not the only game in town."

Video server technology

Microsoft's video-on-demand Tiger is years away

By Stuart J. Johnston
BIRMINGHAM, NASH

Microsoft Corp. says it has a tiger by the tail when it comes to video server technology and is pointing to PC heavyweights Intel Corp. and Compaq Computer Corp. to prove it.

But while the company this month demonstrated what it claims is the best low-cost solution for providing video-on-demand, Microsoft stepped short of even giving ballpark delivery dates or projected prices.

However, Microsoft last week struck a deal with Rogers Cable Systems Ltd., Canada's largest cable television company, to provide video servers for interactive cable systems due to roll out in 1996. This deal is similar to a pact Microsoft struck with Tele-Communications, Inc. (TCI) in February (CW, March 7).

The video server technology, codenamed "Tiger," uses Microsoft's Win-

dows NT Advanced Server to provide multiple, simultaneous streams of video using microprocessors and Asynchronous Transfer Mode (ATM) switched networks.

Officially called the Microsoft Continuous Media Server Architecture, Tiger is scalable from single-server situations with just a few users all the way up to systems with "tens of thousands of subscribers," according to the company. In its demonstration, Microsoft showed Tiger running on a processor based on 16-bit Pentium microprocessors.

A step ahead

For its part, Oracle Corp. already has a version of its Media Server running in production mode for BT, said a spokes-

man for the company.

Microsoft's counter to Oracle's claims is cost. While Oracle's solution requires expensive, massively parallel computers to process thousands of streams of real-time video, Microsoft says little special gear is needed for its solution.

"It's software-based and lets us use off-the-shelf PC components to deliver video to customers and consumers," said Narue Nath, Microsoft product manager for interactive television. "We believe we can do this at very, very competitive costs."

Compaq said it will develop video server machines to support Tiger. However, other issues still remain, namely, when will Tiger be available and who will use it. In its first phase, Microsoft and TCI employees in the Seattle area will test

the system. The second phase, beginning next year, will broaden the project to test interactive TV services among TCI residential customers in Seattle and Denver, the companies said.

Plenty of uses

Perhaps more troubling to corporate buyers is the question of what large information systems shops might do with such technology. Nath cited potential uses such as videoconferencing, delivering training to users' PCs and video annotation of electronic mail and compound documents.

But Nath overhastily stressed Tiger's usefulness for video-on-demand applications such as "movies, catalog shopping and interactive games."

These categories do not exactly fit the classic definition of mission-critical applications — except for corporations in the entertainment industry. So it could be that, at least for most corporate users, Tiger may have a long kiteshoed.



Carol Patton

No EXE.CUSES



Lately I've noticed a surprising increase in software vendors' interest in the Big Dummy Mistake (BDM) department. BDMs are a sort of digital malapropism that can wreak havoc for a short time on the unsuspecting. Fortunately, they are corrected quickly, though they probably make a vendor feel pretty foolish in the meantime.

Here's some good advice: Wait 30 days before installing any new product. Let the eager beavers locate the lead mines for you.

For example, if you snapped up the full retail (not the upgrade) of Microsoft Office 4.0 and Office 4.2, you bought a faulty setup program that does not write the necessary WINWORD.EXE line required for running Word 6.0 into your Windows WIN.INI file. So, instead of launching Word 6.0, you receive the message: "Unable to find the .STP file in the WIN.INI."

Microsoft then compounded this problem by mailing out thousands of patches that rendered their flagship word processing program inoperable. (The patch tries to fix the wrong file.) So, if you were sent a Word 6.0 patch, don't load it. The correct upgrade, PATCH.EXE, is available in Library 2 of the Microsoft Word forum on

CompuServe. (If you don't normally use CompuServe, contact Microsoft support.)

Here's another BDM for you to ponder: Central Point Software (which was recently purchased by Symantec) released its long-awaited upgrade to PC Tools just weeks ago. Those who bought PC Tools 2.0 and tried to load it received this message: "The executable file C:\CPS\WIN could not be found." Oops! It seems the development team at Central Point wrote a setup program that fails to put the entire command that's needed on the LOAD= line in the Windows WIN.INI file. The statement reads LOAD=C:\CPS\WIN, but it should read LOAD=C:\WINDOWS\WIN32\N.EXE.

But let's be fair: While BDMs can cause some pretty bad problems, most are quickly put to rights. Such goods are generally found to have originated sometime between 3 a.m. and 6 a.m. on Sunday morning and often can be traced to last-minute attempts to meet shipping deadlines. Occasionally, BDMs are even caused by fogged eyeglasses (or glazed vision).

Ignore It, and It will go away

A more serious infraction in the Big Awful Shrug (BAS), whereby a vendor ignores major problems by declaring them nonexistent or unworthy of prompt attention. A good example of the BAS involves CorelDraw 4, which shipped just about a year ago (apparently before its beta cycle was complete). Despite maintenance upgrades that are still scarce, even with the latest fix (Version 4.0e), Corel failed to make the product's export filters work properly. Essentially this flaw tripelegged files because Version 4 can't export them. What should you do to move an illustration done in CorelDraw into an environment such as Macintosh? Corel told me to use CorelDraw Version 3.0 if I wanted a PICT converter that really works.

PackRat 4.1 from Polaris Software also qualifies for

the BAS swoonstakes. Despite a so-called "fix," PackRat 4.1 still crashes and can trash valuable files. This is especially sad because Polaris produced the first good personal information manager for Windows (PackRat's earlier versions), and technical support used to be excellent.

But now, everytime I call about a problem with Version 4.1, I get the same story — "I don't know if this will fix it, but we can send you an upgrade for \$69."

Naturally, columnists never make BDMs, although we do, on occasion, fall victim to a lesser evil — the Little Dummy Mistake (LDM). For example, in my April 18 column I said, "All anyone need do is type 'DELDIR' from the OS/2 prompt to get a list of deleted files. The environmental variable is DELDIR, but the command to type is UNDELDIR." Typing DELDIR at a prompt brings up only a SYS3008 (name not recognized) message.

Like their high brothers, LDMs are also caused by instant-mistake errors.

Fortunately, I have readers such as Bob Majors at the University of Minnesota's IS department to catch mine. Bob not only reads my column, but he runs the Twin Cities Arts Hotline on three separate phone lines (the number is (612) 377-5547), plus FaxWorks, a program scheduler and remote access software — all at the same time on a 386 S3 DX PC with a humble 5M bytes of RAM. (Sorry Microsoft, but Bob can't catch your BDMs since he uses IBM's OS/2.)

Note: If you have a shortcut or tip for OS/2 or Windows to share, please send it to my CompuServe mailbox for inclusion in future columns.

Patton is chief analyst at Mendham Technology Group in Mendham, N.J., and produces articles to introduce the business world to the newest computer technologies. She is the author of *OS/2: Secrets and Windows Configuration Secrets* from IBM Books. Contact her at MCI 401-4889 or CompuServe 7370012903.

Automotive technology

Indy 500 merges technologies to improve racing

By Michael Fitzgerald

If it's hackers meeting gearheads, it must be the Indianapolis 500. The old Brickyard has always featured the latest and greatest in automobile technology, but more and more, the racing teams on the Indy car circuit try to advance their cars through computer technology.

"It's used in every aspect of our sport now," said Clay Filson, a project manager at Rahal/Hogan Racing in Hilliard, Ohio.

Some of the teams buy their computer equipment, others have it given to them by major car companies in exchange for sponsorship or help in research, but they all use the equipment as extensively as they can.

Sensors monitor cars

A case in point is Bettenhausen Motorsports, Inc. The racing team, based in the shadow of the hallowed Brickyard at 1086 Gasoline Alley in Speedway, Ind., outfit driver Stefan Johansson's car with various standard sensors. The sensors feed information on a real-time basis to AT&T Corp. 3150 Safari notebook computers used by engineers in the pit.

Virtually all Indy cars have built-in

sensors that feed information to the pit crews this way and can communicate with the driver through speakers and microphones built into their helmets, though many crews do not do real-time processing during the race.

Things typically monitored by racing teams include fuel use, internal temperature and pressure and ride height.

Used for adjustments

"It all plays a lot bigger part than what you'd think in setting up the car," said Brent Harvey, data acquisition engineer at Bettenhausen. For example, the data pulled from the car can be used to adjust wheel loads and make the car "feel" better to the driver.

Much of the data that gets crunched after the race. All the teams track a variety of information that they do not process in real time. In their trucks are heavy-duty desktop computers, they typically run their data modeling and in-depth analyses of race reports on these machines.

For instance, the Newman-Haas Racing Team, part-owned by actor Paul Newman, will pull down some 60M bytes of data during a typical race.

During pit stops, drivers such as Mario

Andretti will get updates on their cars based on data crunched on Compaq Computer Corp. Contura notebooks. But the team also does extensive data crunching off-line on Desktop/MS running a 33/96-MHz Intel Corp. 1486DX2 chip. Newman-Haas Racing uses desktop systems to run everything from modeling programs and data analysis to its wind tunnel.

Filson's job at Rahal/Hogan Racing involves making sure the highly specialized racing cars get built on time. Rahal/Hogan uses Primavera Systems, Inc.'s Project Planner to run its car-building operations.

Knowing when not to panic

"The benefit to us is now you know what your panic areas are going to be and what your critical deadlines are," Filson said.

He added that having the project online in a format that can create hypotheticals lets the team figure out what de-



Bettenhausen Motorsports' Tony Bettenhausen displays the AT&T 3150 Safari notebook computer used by engineers in the pit to monitor the race.

lines can slide a bit or whether there is time to try a different approach to a problem.

"It's hard to put a value on getting the panic out of a situation," Filson said.

Despite all the PC technology, the highest technology at this year's Indy 500 may well be a helmet. The new helmet tentatively called the Super Speedway Shark from Simpson Race Products, has a fan-shaped attachment that helps keep the wind from pulling on the drivers' helmets.



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Notebook computers

DEC, Tadpole team for road

Agree to develop workstation-class notebooks

By Mary Brandel

Unix is usually not one of those things that you "wouldn't leave home without." But Digital Equipment Corp. and Tadpole Technology, Inc. are betting that users would pick up the operating system—and possibly OpenVMS and Microsoft Corp.'s Windows NT too—and take it on the road, if they could.

The two companies have agreed to jointly design and develop a workstation-class notebook computer based on Digital's Alpha AXP DECchip 21068 microprocessor. Tadpole already sells SPARCbooks that are based on Sun Microsystems, Inc.'s chip and run SunSoft, Inc.'s Solaris operating system. It recently added IBM RS/6000 PowerPC-based notebook workstations to its line.

Neither company would provide a release date or product-specific details. Digital also would not say which operating systems would run on the machine.

"Development has been ongoing for some time," said Geoff Burr, chief executive officer at Tadpole. "We're not talking about a two- or three-year development."

Tadpole and Digital have not yet announced manufacturing or marketing

agreements, "although it's fair to say we're doing the lion's share of hardware development, and Digital will do the software," Burr said.

Customers said an Alpha-based laptop would be very attractive—if the price is right. "My gut feeling tells me that, regardless of power, any kind of portable [that costs] more than \$4,000 is not going to make it," said Joseph Polizzi, project engineer at Space Telescope Science Institute in Baltimore.

Tadpole's SPARCbook family runs from just under \$4,900 to \$10,500 for a full-function system.

Frequency interference

Alpha's fast speed poses at least one development challenge: radio frequency interference. "Portables have to be FCC-class devices so that if you do work on an airplane, you don't become the navigation system to go nuts," Burr said. "The faster the processor, the harder it is to reign in stray radio frequencies."

At its national user group meeting earlier this month, Digital demonstrated a prototype Alpha-based laptop running OpenVMS. However, the two are not related, a Digital spokeswoman said.

local-bus video, a 350M-byte or 450M-byte hard drive and integrated audio. Prices range from \$9,199 for the N1700 with a 2575-MHz DX4 and a passive-matrix color screen, to \$9,599 for the N160T. Amra also cut prices on more than 50 different system configurations.

Intel teams for speedy service

Intel Corp. has teamed up with several vendors to jointly define and develop capabilities that will allow data and interactive services to be delivered to home computers at cable speeds. The company is currently working with a number of cable companies and on-line service providers, including General Instrument Corp., Telecommunications, Inc., Rogers Cable Systems Ltd., America Online and Reality Technologies, Inc.

Phoenix offers card manager

Users who have found it frustrating to find it less frustrating to use them now that Phoenix Technologies Ltd. has introduced PhoenixCard Manager Plus Version 3.0. The new software program has been certified with some 250 PC Cards on the market. Phoenix will offer the product either with the cards themselves or with notebooks. It will also be available as part of Phoenix's own BIOS. Phoenix will scale pricing based on a variety of factors such as volume.

Sharp Electronics Corporation has announced Version 1.3 of Expert Pad, a personal digital assistant product.

According to the Mahwah, N.J., company, Expert Pad Version 1.3 offers improved handwriting recognition software and deferred letter-by-letter recognition capabilities.

Expert Pad Version 1.3 costs \$49.

Sharp Electronics

(201) 438-3200

Aquiline, Inc. has announced that the Hurricane family of multimedia notebooks is available with Intel Corp.'s 100-MHz 486DX4 CPU.

According to the Troy, N.Y., company, the upgrade increases processing speed without compromising battery life or power management.

The Hurricane notebook is equipped with an internal 5 1/4-in. CD-ROM drive, a sound chip on the motherboard, up to 20M bytes of RAM, a user-removable integrated drive electronics 540M-byte hard drive and Western Digital Corp.'s 1M-byte graphics accelerator chip.

The Hurricane notebook is priced at \$9,150.

Aquiline

(518) 272-0421

QLogic Corp. has announced that the Fast SCSI ISA Bus SCSI host adapter card has been enhanced with Microsoft Corp.'s Plug and Play capability.

According to the Costa Mesa, Calif., company, Plug and Play simplifies peripheral configuration by allowing peripherals to communicate with the computer's BIOS and operating system without user intervention.

The product does not require a DIP switch or jumper changes when used with PCs that are Plug and Play compliant.

The Fast SCSI ISA Bus SCSI host adapter card costs \$139 and comes with internal and external 50-pin SCSI connectors and an internal 50-pin ribbon cable, which supports up to three internal SCSI devices.

QLogic

(714) 438-3200

Product short

Optique, Inc. has introduced the 4000DS 17-in. color monitor. The product features an advanced power management function, 27mm dot pitch and an invar shadow mask. The 4000DS also offers 16 factory preset resolution modes and 16 user-definable resolution modes. The monitor provides a 76-Hz refresh rate up to 1,024 x 768 pixels. Cost: \$750. Optique, Walnut, Calif. (800) 468-3798.

Briefs

On-line services introduced

Microsoft Corp. and General Electric Information Services, Inc. last week introduced an on-line service for Microsoft Solution Provider and Channel Partner companies. The Microsoft Partner Network provides on-line electronic mail based on Microsoft Mail, a bulletin board system for participating companies and access to up-to-date information in Microsoft's Knowledgebase technical support database and other company databases. The service, available in 34 countries, costs \$450 for an annual subscription in the U.S. A regular satellite broadband service, which features technical information based on Microsoft's DocCast programs, will be announced this fall.

Amra delivers notebooks

Amra Computer Corp. released three new notebooks, including one based on Intel Corp.'s 53/100-MHz DX4 chip. The new 6.7 pound N100 and N75 notebooks are available only in color with either thin-film transistor, active-matrix, color screens or dual-color, passive-matrix, color screens. The N100 uses a 57-in. active-matrix screen, while the N75 uses a 10.3-in. passive-matrix screen. The notebooks also come with

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NT makes client/server headway

Growth steady, but NT no short-term rival for Unix

By Rosemary Caffano

It is no showstopper yet, but Microsoft Corp.'s Windows NT is starting to nudge its way into mainstream client/server application environments.

Recently, both Dun & Bradstreet Software and SAP AG said they will ship versions of their client/server applications for the NT platform.

SAP has reportedly signed a handful of contracts, including one with Intergraph Corp., for versions of its i3 client/server software on NT. D&B Software said it is on schedule to ship an NT version of its Smartstart decision-support software this summer.

Crucial client/server

Although Microsoft will not provide specific numbers for NT Advanced Server shipments going into client/server application installations, a company official said the client/server application market is a key target. As such, the operating system was designed to support core applications, said Matt Ragen, a senior product manager.

For example, NT can schedule jobs like traditional IS systems can, and it has a multitasking capability to manage multiple tasks. In addition, it has built-in security to manage a mission-critical environment. The operating system is also scalable so users can install an application and scale up as needed, Ragen said.

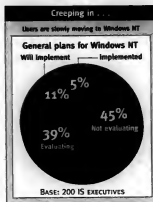
Several information systems executives are evaluating or planning to evaluate the platform for some of

their core applications as they move to the client/server model.

Users and analysts said they do not expect NT usage to shoot ahead of Unix anytime soon. But, they do predict it will steadily build a key role in the client/server application market.

"It is something out there that we know we need to look at, but we are not currently looking at it," said Bill Johnson, director of financial systems development at the corporate headquarters of United Technologies Corp., which recently went live with client/server financial applications from SQL Financial, Inc.

Recent surveys from market research firms such as International Data Corp. (IDC) show that IS executives are taking a cautious approach to Windows NT. Earlier this year, IDC released a study at UniForum 1994 based on interviews with 300 users that showed only 1% were using NT for mission-critical applications in 1993. That number will bump up to 7% this year, the survey said.



Source: Business Research Group, Newton, Mass.

be there, though."

Observers also said Windows NT's technical merit will continue to improve, making it a more viable option. "I guess that long term, [NT is] where we will be," he said in the short term, there's no advantage because it's too new," said Mike Hood, manager of application engineering.

Windows NT, page 54

Ken Lownie

Notes, yes; Mail, no?



More and more of the organizations I talk to about deploying Lotus' Notes are deciding not to use the built-in Notes Mail capabilities. Reasons vary, and there is often good justification for that decision. But the impact of not using Notes Mail goes far beyond how users send and receive messages. In fact, the decision of whether to use Notes Mail has a major impact on the overall viability of Notes within an organization.

One alternative to the use of Notes Mail is simply use a completely separate mail package and omit that from the Notes environment altogether. Administrators can disable the mail function entirely on Notes client workstations.

Another option is to use an "alternative" mail package with Notes. This can

be added to Version 3 of Notes, allows Vendor-Independent Messaging (VIM)-compliant mail systems to be substituted for the native mail system built into Notes, with some level of integration at the mail level.

One common reason for not using Notes Mail is that many sites already have other mail systems in place. There is no desire to add another mail environment with all the support and infrastructure requirements it entails. There is typically also a desire to avoid having users deal with multiple mailboxes on the one hand and undertaking mail gateway projects on the other.

Unfriendly interface

Others decide against Notes Mail because of what they see as deficiencies in the Notes offering.

While there is some validity to this view, I find the root of the concern often rests more in the user interface than in specific product capabilities. Notes does not use the typical folder or in-box/out-box metaphor for mail. It uses a Notes database as the mail repository and relies on users to make use of Notes Views to group and categorize their mail in meaningful ways. To users familiar with other mail systems, the Notes approach of housing mail in user Notes databases is not immediately intuitive.

It is hard to argue against the first con-

cern: the desire not to add another mail system to an organization's current mail environment for usability, infrastructure and support reasons. But those who decide not to use Notes Mail based on the Notes user interface or for lack of specific features and functions may not be taking into account all the implications of their decision.

The decision not to use Notes Mail goes beyond the issue of how users will send messages. It affects how users will view and use the overall Notes environment. In the ideal Notes deployment, the applications available in Notes would be so compelling that users would be clamoring for access.

In such an environment, the lack of Notes Mail may have little impact. But in the real world, Notes Mail is often a critical tool for drawing users into the world of Notes. The users' need to communicate lends them, as part of their evolution as Notes users, to collaborate, and collaboration is where the unique value of Notes lies. Even if an alternative VIM-compliant mail product is added to the Notes environment, the loss of the Notes Forms and Views interface on the mail system means that beginning users will not be learning the Notes paradigm as part of their daily communications.

When Notes Mail isn't part of the package, Notes project leaders lose one key weapon in their battle to create active Notes users. Of course, this does not mean these Notes projects will fail. But it does mean that even more attention than usual has to be paid to the other factors that affect whether users will embrace Notes. These factors include the development of compelling applications, effective championing by management, appropriate reward structures and effective training. And since the reality is that these factors are often hard to completely control, the loss of Notes Mail as a tool for luring users into the Notes environment can mean slower adoption rates or worse.

Sometimes, the decision to use an alternative to Notes Mail is unavoidable. When there is the possibility of using Notes Mail, however, any decision not to do so should be made only after carefully considering the impact of the loss of Notes Mail as a tool for building an effective network of Notes collaborators.

Lownie is president of Comtec Consulting Group, an Andover, Mass., firm specializing in groupware deployment and development. He can be reached through the Internet at klownie@comtec.net or notes.com@compuserve.com.



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PC server vendors turn to clustering

By Jalankar Vijayan and
Stephen P. Kleit Jr.

NetFrame Systems, Inc. and Compaq Computer Corp. recently unveiled clustered server strategies aimed at putting their platforms on the same playing field as minicomputers.

Clustering is the process of linking multiple servers in a central location to provide higher levels of performance and scalability as well as easier manageability than stand-alone machines can offer. For example, a cluster of PC-based servers can run a database application that is traditionally housed on more expensive minicomputers and mainframes.

Users said they are excited about clustering's potential.

"The cluster approach is extremely valid," said Douglas Murphy, manager of systems support at Keyport Life Insurance in Boston. "The [scalability of] standard, single-processor servers is reaching its ceiling," as applications drive the need for greater horsepower and connectivity, he said.

Other users agreed. For example, Jim Oswald, director of information systems at Jockey International in Kenosha, Wis.,

said he sees clustering as a way to off-load computing tasks from overburdened processors to idle machines across the network.

"Clustering is very attractive to a lot of customers because it gives them more [system] availability, reliability and continuous access to data" in a mission-critical environment, said Chris Christensen, research director of worldwide commercial systems and servers at International Data Corp. in Framingham, Mass.

NetFrame is hoping to address some of these issues with its recently unveiled ClusterServer 2500 line. These servers come with cluster-management software that allows users to manage and configure clustered resources such as disk storage and remote I/O or application servers over the network.

NetFrame's Concerto software allows different shrink-wrapped operating systems to run on multiple application serv-

Changes of clusters

"Clustered servers offer users higher availability, and they are capable of handling work," said Lynn Berg, an analyst at Gartner Group, Inc. in Stamford, Conn., outlining the reasons for the recent interest in clustering. Clustered systems will represent fully 40% to 50% of the LAN consolidation that is taking place today, she said.

ers in the same clustered system. For example, a ClusterServer running Concerto lets up to 1,000 NetWare clients share word processing or spreadsheet files while a separate application server concurrently runs a Unix database or application such as Oracle Corp.'s Financials, NetFrame said.

Up and running

In addition, ClusterServer systems have high-availability features that allow components to be replaced or "hot-swapped" without bringing the servers down or disrupting users on the network, NetFrame said.

"We're positioning this line as mission-critical applications servers. If you have a casual business atmosphere this technology probably doesn't apply," said Carl Amadi, NetFrame's chief technical officer.

Meanwhile, Compaq has begun to ready a long-term server strategy that it hopes will increase its presence in the midrange application server market. As part of the company's server plans for 1995, Compaq will introduce high-end servers with built-in features for inter-networking and clustered computing

aimed at specific market segments.

Compaq will position the servers for users downsizing from traditional minicomputers or those integrating smaller servers. The systems will be based on Compaq's ProLiant multiprocessor server architecture and will come loaded with cluster management software, error-correcting code memory, parity checking and improved failure prediction capabilities.

"We are not going to do clustering in an absolutely general kind of way," said Gary Stimec, Compaq's vice president of product planning, in a recent interview. Instead Compaq will ship application-specific, highly-scalable servers capable of supporting multiple networks.

Meanwhile, Compaq and other PC server vendors such as Tricord Systems, Inc. have been marketing symmetric multiprocessing (SMP)-capable servers. NetFrame, on the other hand, has been silent about its SMP plans. However, sources close to the company said it is readying an SMP-enabled super-server—known internally as Gemstone—that will debut late this year.

"We've put clustering ahead of SMP for now, but it's not an either/or technology," Amadi said.

"Clustering will embrace SMP when it becomes robust enough. For example, we can take each of the nodes and grow them to SMP so you have a cluster of SMP machines," he said.

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Windows NT

CONTINUED FROM PAGE 51

ing at Autodesk, Inc., which uses SAP's R/3 client/server applications.

However, some users running mission-critical applications on NT said the notion that it is cool yet mature is baloney.

"That sounds like what the railroad barons said about airplanes," said David Greenberg, director of new systems development at Orlando Health Care Group, which is running a medical practice management system supporting 750 workstations on NT. "We handle 300,000 patient visits a year. The reliability and robustness of the system is superb."

Richard Boone, manager of technical services at King County Medical Blue Shield in Seattle, said his company is deploying NT as a client/server application platform for custom-designed programs.

"We have to look and see what makes the most sense," Boone said. "We were a Cobe VSAM shop. A lot of this doesn't give those Cobe programmers a warm and fuzzy feeling."

But for select client/server implementations, Boone said NT cannot be beat. "We were impressed with the security [and] the level of integration between SQL Server and NT," he said. "At least they talk to each other. We lowered the technical risk a lot because we could get this all from one vendor."

Briefs

Cheyenne fixes bugs

Cheyenne Software, Inc. last month shipped an update for ArcServe 5.0 file server software that eliminated a rash of problems such as the repeated server failures users have reported with the backup software. The update will be mailed to existing users and is also available on CompuServe and Cheyenne's electronic bulletin board system.

Auditing tool debuts

Preferred Systems, Inc. in West Haven, Conn., last week announced AuditWare, said to be the first Windows-based auditing tool that does cross-server queries across Novell, Inc. NetWare 2.x, 3.x and 4.x servers. The product collects and displays usage data by user, file server and disk volume. It is available now at \$595 per server.

Wired for data

Wolf Communications has added a new Associated Press wire feed to its public network for Lotus Development Corp.'s Notes and CC-Mail users.

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- ☐ 80 Human Resources Management
- ☐ 90 Education, Journalism, Librarians, Students
- ☐ 99 Other (List Personnel)

3. Do you use available specialty recommendations purchase (Circle all that apply)

- ☐ Digital Systems
- ☐ 10 Software ☐ 11 Mac OS
- ☐ 12 Windows ☐ 13 Windows NT
- ☐ 14 OS/2 ☐ 15 Windows
- ☐ 16 Unix ☐ 17 Macintosh
- ☐ 18 App. Development Products ☐ 19 Yes ☐ 20 No
- ☐ 21 Publishing Products ☐ 22 Yes ☐ 23 No

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Reporter's

Notebook

Unix in Japan

Japanese computer giants Hitachi and Fujitsu are ready to throw their chip-making expertise and organizational know-how behind Unix and client/server systems on a global basis. But this paradigm shift from the well-known world of Japanese-made mainframes and PCs will be accompanied by a large number of partnerships with U.S. and European firms, which have already climbed the steep learning curve to open systems.

U.S. and European firms know their local markets in a way that Japanese vendors cannot. They also have insight into local languages and cultures, which is vital to user-friendly client/server computing. Japanese vendors have concluded that as far as global sales are concerned, partnerships are the only way to get the jump on well-established Unix players.

Visible signs of the two firms' open systems philosophy have surfaced in recent weeks. Last month, Fujitsu reached a five-year joint development agreement with Sun Microsystems that will allow Japanese and American engineers to

work closely together, exchanging technology and creating common interfaces between Sun and Fujitsu products. The Japanese market is generating about 15% of Sun's sales, and the percentage is growing. Sun and industry analysts agree.

Fujitsu's rival, Hitachi, also signed a five-year pact last month, with IBM. It allows Hitachi to use IBM's CMOS and PowerPC RISC technology in future high-end parallel processor products. Hitachi said it has already shifted considerable research and development resources to Unix and open systems development [CW, Apr. 18]. A separate long-term agreement with Hewlett-Packard on PA-RISC technology is aimed at Unix workstations and servers.

The Unix moves are being made to serve the emerging Japanese market for open systems, as well as to ensure that Hitachi and Fujitsu are in the global information technology game when many major corporate sites downplay their mainframe technology.

In Japan, the move to Unix systems came later than in the U.S. and Europe, explained Yasushi Tajiri, a manager of business development at Fujitsu's international computer systems group. He spoke about the firm's Unix plans at a San Jose, Calif., meeting held by Fujitsu chip design subsidiary Ross Technology last week. In an effort to reinforce SPARC as a Unix standard, Fujitsu and Sun have said they would commit \$500 million during the next five years to chip design alone.

Tajiri, who helped forge Fujitsu's partnerships abroad and helped invest in overseas computer companies, said a number of the 1,000 mainframe sites in Japan are already considering downsizing. "The shift from proprietary to open systems is moving quite quickly," he said. The Sun agreement goes beyond SPARC chip technology to include software and middleware, he said.

A recent trip to Japan confirmed that the Japanese domestic market is now poised to take off in open systems. According to IDC Japan, Unix workstation shipments grew 19% last year, peaking at 145,010 units. Sun, through its Nihon Sun Microsystems venture, was No. 1 in market share, with 27.8%, according to IDC Japan. HP was second, with 16.7% of the market.

Close partnerships with Japanese firms such as Fujitsu, Toshiba, Fuji Xerox and Matsushita created ready-made channels. Sun's workstation products, said Steve Furney-Howe, manager of planning and development at Nihon Sun in Tokyo. "They have customer relationships that existed long before the silicon chip was even invented," he said. Now, with the Japanese economy in a downturn, Japanese users are look-

ing to open systems and Unix as a way to save over mainframe costs. "In Japan, Unix is seen as the next generation enterprise operating system," Furney-Howe said.

Foreign shares

Fujitsu owns more than 50% of Amdahl Corp. stock, about 80% of ICL in London and all of large-scale server firm Hitachi Systems, Inc. in Austin, Texas. Fujitsu acquired Ross Technology, Inc., an Austin, Texas, chip-design firm, in June 1993.

Hitachi owns 80% of Hitachi Data Systems Corp., Electronic Data Systems Corp. owns the rest of the global mainframe and peripherals firm. Hitachi is one of the companies backing the Kaneda software venture, which is a general partner at Hitachi's central research lab, Nakamura. Said Hitachi already hosts 80 guest researchers at the laboratory each year, most of them from the U.S. and Europe.

"Basically, we pay all the expenses and ask them to do good research here," he said.

—Jean S. Bozman

Windows NT

Intergraph offers Pentium processors to Unix user base

By Jean S. Bozman

When Intergraph Corp. bet its flagship product line on Microsoft Corp.'s Windows NT and Intel Corp.'s Pentium processors early this month, users and analysts took note. PC companies had made the move to NT before, but Intergraph is a longtime supplier of Unix RISC workstations for its computer-aided design (CAD) and plant management applications.

Now, Intergraph views the Intel platform as a familiar one that can draw new users. The company is touting the strength of its technical applications, no matter where they run.

Still, Intergraph had to consider its installed base of Unix workstation users before moving to Pentium with its 60-MHz Model TD-5 workstation last year and following up with three new Pentium models (see chart). It had been selling its aging Clipper RISC chip, which dates to the 1980s, and supporting SPARC-compatible platforms from a company it acquired more than five years ago.

Access to NT

Bill Payne, manager of systems product marketing at Intergraph's base in Huntsville, Ala., said, "Our existing customer base in Unix, and they need the ability to purchase these new NT-based seats and to plug them into the network without loss of functionality."

Payne said Intergraph had to create middleware to more easily connect the Windows NT and Unix servers,

Model	Processor	Type	Memory	Available	Price
TD-5	486-33 MHz	Desktop	up to 32 MB	Now	\$2,500-\$3,500
TD-4	Dual 486-33 MHz	Desktop	up to 64 MB	June	\$3,500-\$6,000
TD-3	Dual 486-33 MHz	Desktop	up to 64 MB	July	\$3,500-\$6,000

so it is developing Network File System (NFS) software links for the NT servers that will connect them to PC-NFS client machines. Intergraph also developed an X Window System server for Windows NT that will allow users to access NT and Unix servers.

Some early users of the new NT servers said interoperability is a very high priority. "With TCP/IP [in our network], we can have an NT workstation talk to a Clipper server, or the Clipper workstation talk to the NT server," said Steve Williams, a senior systems analyst at Illinois Power in Decatur, Ill. "We've seen it work, but we haven't done it here yet." The firm recently ordered more than 300 of the Intergraph NT machines.

The utility firm, which has an IBM mainframe at its

headquarters, already has several NT Advanced Server up and running, along with some IBM OS/2-based servers, Williams said. The advantage of the Intergraph NT platform, he said, is that it will let the firm's engineers use the corporation's Windows office applications on their primary workstation.

A leg up

Dominic Ricchetti, director of workstation research at Dataquest, Inc. in San Jose, Calif., said he believes Intergraph will beat larger rivals to a growing market in which low-end workstations and high-end PCs compete.

"I think Intergraph sees something there," Ricchetti said. "They want to make NT and Unix play together, rather than feel that NT is the enemy" of Unix. And, while high-end NT servers have been slow to take off commercially, he said, Pentium-based machines should give Unix customers real price/performance pressure by year's end.

Analysis said Intergraph plans to emphasize the value of its unique CAD and engineering software—whether it runs on NT or Unix computers.

"The [Intergraph] hardware will be late, and their software will be run on the most competitive platform," said Terry Bennett, director of technical systems research at Computer Intelligence Inc./InfoCorp in Beaverton, Ore.

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Enterprise Networking

BASEBALL STADIUM TURNS
TO WIRELESS TECHNOLOGY
FOR FOOD SERVICE, 60

Network eases pains of hospital visits

Aetna's system lets health providers quickly access insurance information

By Lynda Radosevich

Visiting a hospital is rarely a barrel of fun, but Aetna Life & Casualty Co. is trying to reduce one irritating factor: the long check-in process.

Since January, the Hartford, Conn., company has been operating an immediate-response electronic data interchange (EDI) application with hospitals. The system lets hospitals know in six seconds whether a patient has insurance coverage, and how much, if anything, the patient must pay out of pocket.

Industry experts said the system also helps streamline one step in the overall check-in procedure: verifying insurance eligibility. This step could traditionally take anywhere from a five-minute phone call to sometimes not checking it at all, said Lee Barrett, assistant vice president of Aetna's Health Plan Connectivity Strategy.

"Hospitals are looking to access timely insurance information as a by-product of admission processes. The real value is to get this information without having to do the separate process of a phone call or a fax," said Shaun Kelly, an independent EDI consultant working at the Con-

necticut Hospital Association in Wallingford, Conn.

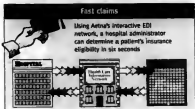
Additionally, the system lets hospitals determine the patient's portion of the payment and collect or arrange for payment while the patient is still there, Barrett said.

How it works

Using Aetna's eligibility EDI system, a provider runs a patient's health card through a credit card reader or enters the information manually. The EDI inquiry travels from the hospital across National Electronic Information Corp.'s (NEIC) Health Care Information Network to Aetna.

Then the transaction travels through a leased X.25 line to a Digital Equipment Corp. facility that quickly looks up IBM DB2 CICS information on Aetna's mainframe and returns the eligibility data to the network and back to the provider. The entire trip takes about six seconds, according to a Digital source.

"It doesn't guarantee payment of the claim, but it does give the provider a good indication of what the plan pays for and what it needs to collect," Barrett said.



Aetna's system is one of many cropping up through NEIC. The Secaucus, N.J.-based value-added network is providing similar services for payers such as Cigna Corp., John Hancock Mutual Life Insurance Co., Metropolitan Life Insurance Co. and PacificCare Health Systems. On the provider end, about 225 health care organizations and 5,500 individual physician members are registered, according to Jim Pickering, NEIC's vice president for managed care.

Although some basic eligibility checking systems exist, they are proprietary and require a dedicated connection between the payer and the hospital, Kelly said. "Hospitals are looking for a standard way to deal with myriads of insurance companies that they do business with, so the fact that NEIC has more than just Aetna connected makes it attractive," he added.

NEIC does not yet connect with important health care players such as Blue Cross/Blue Shield, federal Medicare and state Medicaid programs. However, NEIC is aggressively going after those partners, Pickering said.

Setting standards

Before Aetna's methods can become truly standard, the American National Standards Institute's EDI community must deliver new, slimmed-down specifications for the rapid-response transaction sets. That process is under way, but standards are not expected to be approved before the fall. The current EDI X12 sets allow more information than a rapid system can handle, analysis said.

Also, because the system requires continuous access to back-end computer applications, it can become expensive. For in-

Aetna, page 60

Artisoft takes aim at NetWare with high-end servers

By Elisabeth Horvitz

■ Artisoft Corp. has moved into Novell, Inc.'s turf — with the network server giant's full cooperation — by announcing a 32-bit dedicated server based on NetWare 4.x.

The Tucson, Ariz., vendor is aiming its Corestream product at small and medium-size companies and branch offices that want the full capabilities of a networked system. The real value is to get this information without having to do the separate process of a phone call or a fax," said Shaun Kelly, an independent EDI consultant working at the Con-

necticut Hospital Association in Wallingford, Conn. Additionally, the system lets hospitals determine the patient's portion of the payment and collect or arrange for payment while the patient is still there, Barrett said.

Corestream reportedly offers the same features as NetWare 4.x, with the exception of the global Net Directory Service (NDS) and SFT III fault tolerance. The product supports SFT I and II disk mirroring and deduplication and will support NDS "when Novell works the bugs out," an Artisoft spokesman said.

Corestream's added value over NetWare is that it has the look and feel of LANtastic, including its ease of use and administration features, company spokesmen said. In addition, the 32-bit platform is said to provide a major performance boost for users of LANtastic, Artisoft's peer-to-peer network operating system.

On initial testing, Corestream appears to provide double the throughput, for an application such as a disk copy, over the old 16-bit LANtastic, said Ron Redeker, an IS engineer at Interpoint Corp. in Redmond, Wash.

"It also has some nice features from NetWare 4.1," such as disk mirroring and compression and storage of files

on a backup medium after a set period of time, he added.

The move is an excellent one for Artisoft if it wants to move beyond the limited peer-to-peer market it now dominates, said Stan Schall, LAN service director at Computer Intelligence/InfoCorp, a La Jolla, Calif., research firm. "First of all, it addresses a real need among companies that have stretched [their use needs] beyond peer-to-peer to where they are comfortable with a server."

Promising future

More significant, however, is Artisoft's potential to appeal to companies that want to provide branch offices with NetWare capabilities but without the degree of sophistication needed to operate and manage NetWare 3.x and 4.x servers, Schall said.

If Corestream delivers an its ability to support virtually all NetWare Loadable Modules (NLM) and to interact with NetWare servers, Artisoft will finally have a product that appeals to Novell sites, Schall said. Corporations that have so far avoided Artisoft also find it reassuring that most Artisoft value-added resellers sell and support NetWare, he added.

Allen Bradley Co. is evaluating Corestream's level of

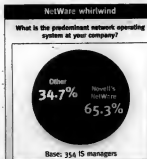
NetWare compliance to decide if it will continue using Artisoft as a server supplier, according to Bob Kretschmann, a principal engineer at the Cleveland maintenance. The company is winning down a very mixed bag of network operating systems to simplify maintenance.

"Whether we keep LANtastic or bolt it down to whether Corestream supports things like [Lotus Development Corp.'s CC-Mail] and provides connectivity to the NetWare side," Kretschmann said. If it does, LANtastic's ease-of-use features make it a worthwhile investment, he said. For example, "LANtastic lets you know when a print job is done: NetWare does not," Kretschmann said.

Artisoft developed its NetWare-compliant server with full cooperation from Novell, Artisoft spokesmen said. By the end of the month, the company said it hopes Novell will certify that Corestream runs with all third-party NLMs.

"It's a win-win situation for Novell because they get revenue every time the product is sold," Schall said.

Corestream is scheduled to begin shipping next month. Prices will begin at \$949 for a five-user standard version.



Source: Business Research Group, Newton, Mass.

Wireless technology

Houston Astros fans receive high-tech service

Handheld terminals let baseball fans order and receive refreshments without leaving their seats

By Michael Fitzgerald
HOUSTON

■ Baseball — and hot dogs — may never be the same. At least not for fans at the Houston Astros dome, where concessionaire Harry M. Stevens Services, Inc. provides a waiter service, thanks to a specialized computer application designed for hotels.

Fans in the Star Deck, the first 15 rows surrounding the infield from first to third base, can wave a menu to attract the attention of a waiter, who will come down and enter the order in a one-pound, specialized handheld terminal. The order is then walked over a spread spectrum network into a PC that acts as the central order processor.

The order is printed in the kitchen and at a runner's station. When the food is ready, a runner brings it to the fan, who does not miss a moment of the game. The Star Deck seats up to 2,700 people,

and 15 waiters and 30 runners provide service.

The \$1,600 handheld terminal, called the Micros Handheld Terminal, has a simple interface with a key for each menu item, a small display to verify the order and a magnetic strip reader for customers paying with credit cards. All transactions are handled over the wireless link.

The application, installed by Micros Application Systems, a Beaverton, Md., subsidiary of Malloy Cash Register, Inc., was initially intended

ed to let large hotels give poolside service, according to Joseph Seay, general manager of Micros' Houston office.

Astros owner Drayton McClane requested the wireless handhelds, after attending a game at Miami's Joe Robbie Stadium, which has a similar application.

Matthew Kasperka, assistant concession manager at the Astro Dome, said Stevens Services had to build a new kitchen to handle the application and that the company does not expect to generate more business with the

applications. The goal instead is better customer service.

Seay pointed out that the installation is straightforward and involves a fairly simple interface so it has proved to be technically trouble-free.

Works great

The application was tested on March 19 and March 20, and the Astros opened April 4. Through 13 home dates, "the system's worked great," Kasperka said. The concessionaire had to hire more runners after it found business better than expected on opening day, but otherwise the only problem is when the order printer runs out of paper.

"It takes about 30 seconds to change paper and that always excites them when they have to do that," Seay said.

One runner agreed that this was an occasional problem, but said it had already become a temporary annoyance. Otherwise, runners and waiters said they had no problems with the system.



Gary H. Anthes

Networked children

"We want every child to be able to plug into the Library of Congress as easily as Nintendo," Commerce Secretary Ronald H. Brown said recently, touting the glories of the information highway.

Yeah, right. I can barely get my 11-year-old daughter to use the dictionary on her desk, and I'm going to send her out for a digital browser

through the library's 16 million volumes?

It has always been easy to see how universities would benefit from the information highway, after all, they practically invented the Internet. But it was much harder to imagine just what it might do for the Bureau and Barbie crowd. Electronically impaired classrooms would not appear at the top of most lists of what's wrong with our elementary schools.

However, I recently visited Long Branch Elementary School in Arlington, Va., and I was completely won over to the bands-with-bubbles concept. One of a handful of elementary schools with Internet access, Long Branch uses the 'net for videoconferencing and other things that would be the envy of many Fortune 500 companies.

Inspiring minds

Not so long ago, says fourth grade teacher Naomi Hazlehurst, when students asked a question she could not answer, they were sent to the library to look in an encyclopedia. Now she has them post their questions to an appropriate Usenet bulletin board. For example, one kid asked if it was possible to go so fast on a playground

swing that he would flip all the way over the top. An Internet resident "Mr. Science" replied, "no" and suggested a simple experiment using popsicle sticks to demonstrate the physics involved.

Students use the Internet with Virginia's Public Education Network, which links all 2,000 public schools in the commonwealth, to reach instructional "pavilions." For example, students can send questions to Thomas Jefferson at tjv@vs66.schools.virginia.edu and have them answered by a teacher "curator" at a virtual Monticello.

According to Hazlehurst, the Internet can qualitatively improve learning because it is fun and it adds life and suspense to research. "We still have the encyclopedia as a resource," she says. "But there are some things you just don't know where to look for, and there's someone out there who has an answer or connections to find the answer."

Better teaching tools

Hazlehurst, who like most teachers is being pushed to take on more and more educational chores, says, "I don't need more things to teach. I need better tools for teaching."

Long Branch is one of 20 U.S. elementary and junior high schools participating in the Global Schoolhouse Project, sponsored by the National Science Foundation with support from industry and universities. The schools use the latest Internet tools, such as Gopher, Mosaic and the World Wide Web, as well as CU-Seefm software for live Internet videoconferencing from Cornell University and Mosaic software for Internet audio from the University of Illinois.

Thus armed, Long Branch students have videoconferenced with the likes of Sen. Dianne Feinstein (D-Calif.), an astronaut and senior government officials. "It gives us access to people we could not normally get access to," says Carla Schutte, computer resource teacher at Long Branch. During the recent solar eclipse, students hooked up in real time with astronomers at an Arizona observatory and watched the action through a special solar telescope.

Adults often get pretty sloppy with their writing as

they dash off E-mail to colleagues, and some worry that computers will similarly lead to sloppy writing habits

Students use the Internet to reach instructional pavilions.

But Schutte says the opposite is true; students composing E-mail or bulletin board postings take extreme pains, knowing their efforts may be seen by many others.

Mind you, it takes a little time to learn just how to use the 'net. Hazlehurst said the first question she was asked when she got her modem and phone line installed was, "Oh, can we call Pizza Hut and order a pizza?"

Anthes is *Computerworld's* senior correspondent in Washington.

Aetna network

CONTINUED FROM PAGE 20

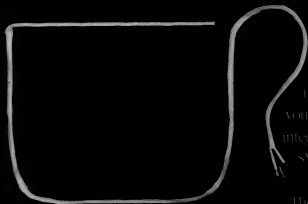
stance, charge-back for a real-time MVS transaction is roughly twice that of a batch-processed transaction, according to Barbara Reilly, an electronic commerce program director at Dartmouth College, Inc. in Hanover, Conn. "Immediate response adds complexity, adds cost and adds limited value," Reilly said. Rather, hospitals could download the eligibility information each night for the upcoming day's patients to a PC, she added.

Burrast agreed that immediate response is necessary in only about 20% of admissions. In the other 80% or so, an overnight batch process or a fast-batch model that returns responses in roughly 30 seconds is probably adequate. So providers and payers must determine when they need the six-second turnaround or when other processes will do, he said.

If systems providers such as Digital can lower the cost of accessing legacy applications, the real-time EDI processing is more appealing than batch processing because it does not require a separate procedure, Reilly said.


Also, the standards work holds out the promise of a broadly available system. When that work is complete, "a hospital will be able to inquire any insurance company through a common process," Reilly said.

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Network Systems

Briefs

IBM unit inks pact

Altium, an IBM subsidiary, signed a marketing deal with Norand Corp. to relabel and market Norand's wireless radio frequency systems.

Computer buys gateways

Computer Corp. in Pittsburgh has acquired McData Corp.'s LinkMaster 6100

and 6200 LAN gateway products. Computer will enhance the products to support both SNA traffic and TCP/IP LAN traffic over the same gateway, the company said. Computer sells IBM channel expansion products.

GTE gears up video service

GTE Telephone Operations last week announced a switched, fractional T1 service that can provide videoconferencing across the public, dial-up network without an inverse multiplexer.

GTE has built a bandwidth-on-demand algorithm into its service that aggregates six dial-up phone circuits into a quarter T1 (1.544 Mbit/sec.) line. The new switched fractional T1 service will sell for a monthly flat rate of about \$150, plus usage charges, GTE said.

The company plans to test-market the service with some two dozen companies beginning in the third quarter and expects to offer the service commercially in

22 states beginning in December.

CDPD developer's kit released

Pacific Communication Sciences, Inc. released its 8085 Cellular Digital Packet Data Uniquity Software Developer's Kit.

Digital to design PCI chips

Digital Equipment Corp. opened a \$7 million chip design center in Israel last week that will manufacture Peripheral Component Interconnect-based communications chips.

Report outlines NII focus

Commerce Secretary Ronald H. Brown has released a report outlining seven key application areas for the National Information Infrastructure (NII). The Information Infrastructure Task Force, which Brown heads, said the government will focus the NII on manufacturing, electronic commerce, health care, education and lifelong learning, environmental monitoring and libraries.

"We want every child in every home to be able to plug into the Library of Congress as easily as Nintendo," Brown said.

Firm puts resumes on-line

One of the world's largest outplacement firms, New York-based Drake Beam Morin, has teamed up with Restrac (formerly MicroTrac Systems), a human resources systems vendor in Dedham, Mass. Human resources managers with a Restrac Enterprise system will be able to search on-line for job candidates in Drake Beam Morin's resume database. Outplacement firms traditionally mail or fax lists of candidates to human resources departments.

Isiscad offers WAN tracer

Isiscad, Inc. in Anaheim, Calif., previewed a wide-area network (WAN) model for its Command physical network management software at Interop/Networld '94. The product is said to trace WAN circuits, including those that run across multiple carriers, and to monitor bandwidth allocation over those circuits.

Switches provider signs deal

IntelCom Group, Inc., the nation's third largest alternative access provider, inked a \$6 million contract with T3Plus Networking, Inc. in Santa Clara, Calif., for broadband switches and network management software. The T3Plus 19MX45 systems will support speeds of 45M to 150M bit/sec. and more.



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Large Systems

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License manager integral to AS/400 plan

By Craig Stedman

The impending advent of user-based pricing on IBM's AS/400 line means customers will soon be getting an introduction to license management technology, which IBM is integrating into the OS/400 operating system to track usage of the machines.

IBM announced this month plans to shift OS/400 to a user-based pricing scheme when Version 3 of the operating system ships in the fall (CW, May 9). The license management software will monitor access to OS/400 to ensure that only the licensed number of users are active on the system.

A rudimentary license manager is already available on the AS/400 for the small number of applications that have been offered with user-based pricing, such as CICS/400 and PC Support/400 (which is being renamed Client Access/400 in a release due out next month).

However, the existing license manager "just gives you a notice to say that you've exceeded the number of licensed users," said Joan Hilder, a software business practices adviser at IBM's AS/400 division. The new tool in OS/400 Version 3 "is much more sophisticated," she added.

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Supporting cast

IBM's recent AS/400 introduction, aimed at continuing efforts to open up the mid-range machine and make it more competitive with Unix systems, included the following:

- **AS/400 Advanced Series:** 11 full systems and three server models promise 15% to 65% price/performance gains over F series hardware. Base hardware prices: \$9,000 to \$673,500. Shipments start June 3.
- **OS/400 Version 3:** Rewritten operating system with Unix-like

file system and increased support for Spec 1170 programming interfaces. Base prices: \$500 to \$25,000 for one user and \$400 for each additional user. Shipments begin in August, generally available in the fourth quarter.

- **DB2/400:** Renamed version of integrated OS/400 database with referential integrity, stored procedures and other features. Also supports SQL common to IBM's other DB2 products, Open Database Connectivity and other data access protocols.
- **TCP/IP:** Now integrated within OS/400 and rewritten to improve performance by eight times. Implementation of Advanced Pro-

gram-to-Program Communications protocol also redone to boost throughput by three times.

- **File Server/400 Processor:** Board based on 60-MHz 486 chip that provides eightfold increase in file-server performance. Supports OS/2 LAN Server initially and NetWare in 1995. Prices: \$1,700 to \$9,500, plus \$1,500 for LAN Server/400 software. Available Sept. 8.
- **Client Access/400:** Renamed version of PC Support/400 with three times faster performance and support for open programming interfaces. Prices: \$985 per user. Available for OS/2 1.3 on June 3, OS/2 2.1 in March 1995. DOS and Windows 3.1 releases planned for the fourth quarter.

Paul Gillin

Look who's on the cutting edge



When IBM consulting networking specialist Walter Barlow arrived for work at IBM's Cranford, N.J., office recently the first thing he did was walk up to the PC in the front lobby and

type in his telephone extension. The computer told him that he would be assigned to Desk 135 for that day.

At the spartan desk, amid 150 other desks just like it, Barlow plugged his IBM ThinkPad 720 into the wall and logged on to the LAN. The phone set, which was automatically assigned to his extension number when he signed in at the front desk, was already blinking with his messages from the previous day. He opened his briefcase. He was in business.

The office of the future? Maybe. There's no denying the headquarters of IBM's Trading Area is a lot different from your standard office complex. With 300 cubicles spread across nearly 100,000 sq ft and no walls higher than three feet, the building looks more like an airplane hangar than a conventional office building.

That's intentional. Cranford is the result of a major consolidation of IBM's large account operations in New Jersey. For this year the company completed the folding of five office buildings, totaling 400,000 sq ft, into one location with one quarterly space.

The primary motive for the move was cost reduction. The Cranford consolidation cut fixed office expenses in half, even after 600 sales and customer support representatives were outfitted with ThinkPad portables and Lotus SmartSuite applications.

But more important is that the shift is changing the way the staff thinks about the workplace. Without a desk in a cube to act as an anchor, field representatives essentially have to carry their office with them. "I have the tools with me all the time to answer questions as they come up," says Debbie Zill, an IBM services specialist.

The open-office approach has "probably improved communications in the group itself," says Duke Mitchell, New Jersey Trading Area general manager. Mitchell says he didn't have to swim through an ocean of bureaucracy to make the consolidation happen. While no hard productivity figures are available on the 4-month-old experiment, Mitchell says field reps seem to be spending more time with customers.

At least one customer agrees. "They're just as responsive as ever, even better," says John Blazek, vice president of MIS at Sharp Electronics Corp. in Mahwah, N.J.

Consolidation enabled IBM to take the best equipment from five offices and combine it in one. Cranford boasts a high-tech conference room with computer equipment for electronic brainstorm-

ing, more than a dozen good-size meeting rooms and a computer lab full of equipment for employees to tinker with. The building is run by 10 PS/2 Model 85 servers, and personnel can tap into corporate mainframes, discussion groups and the Internet through an internal network.

If Cranford is what the new IBM is all about, then there are reasons for optimism about Big Blue. What makes Cranford so impressive is its underlying set of assumptions about IBM and its customers.



The mostly empty floor of IBM's Cranford, N.J., facility: Reps spend their time in the field

The 4-to-1 employee-to-desk ratio assumes that IBM sales and service people should spend their time in the field, not behind a desk. On a recent visit to Cranford, less than one-third of the 150 open cubicles were occupied. The arrangement also says a lot about a recent IBM initiative to evaluate people more on results and less on face-time in the office. The field force in the New Jersey Trading Area can work from home, a car, a customer site or wherever they want. It doesn't

matter as long as the job gets done.

That's not to say everyone should move their headquarters to a converted box factory. IBM employees admit that the loss of luxury office buildings was a blow to some longtime workers who associated status with square footage. And the New Jersey field force has been through the mill as its ranks have been cut by 50% and IBM's finances unraveled.

But the stark, no-frills atmosphere of the Cranford warehouse and the fact that no one—not even the general manager—has an office, serves a pointed message. Cranford says corporate hierarchy doesn't count for much any more. And employees don't seem to mind very much. "People in general are handling the change much better than I anticipated," Barlow says.

To deal with the inevitable loss of personal space, the staff erected a "memorabilia wall." Each employee could take one item from their old office and mount it on a spot in a common area. There's a lot of interesting stuff on that wall: people's first IBM ID cards, IBM achievement awards and letters of appreciation from former chairman John Akers. It's pretty clear that despite all the changes they've been through, people in Cranford are still proud to work for Big Blue.

Gillin is Computerworld's editor. His Internet address is pgillin@cw.com.

British Gas standardizes data access for end users

By Rosemary Caffasso

■ British Gas PLC hopes to put a big chunk of corporate data now stored on 15 different mainframes into the hands of thousands of end users.

"It's all about enabling the users," said Rosemary Harker, office systems project manager at British Gas. "It's their data. We're just the custodians."

To pull off this project, the UK-based company is relying on guidelines and a systems architecture as much as on new end-user query tools.

"We can't stop a runaway user from doing something stupid; nobody can," Harker said. But, she added, "we are very strict with them."

Actually, British Gas got started on this project about four years ago. At that point, it standardized on Information Builders, Inc.'s (IBI) Focus reporting and fourth-generation language tools and decided to create a more specific strategy for end-user data access.

The strategy today is far different from the older Focus environment. It includes a data warehousing effort in which data

chunks are downloaded from mainframes to Digital Equipment Corp. or Unix platforms, all of which run the Oracle Corp. database management system; a standard desktop platform based on Lotus Development Corp.'s SmartSuite; and IBI's Focus Reporter for Windows.

Users can access data from within SmartSuite by using the IBI Enterprise Data Access/SQL (EDA/SQL) data access software, which has links to desktop applications such as Lotus' 1-2-3. Or they can use Focus Reporter for Windows, which gives them direct access to the Oracle data.

The plan's current phase calls for moving several hundred users from beta versions of Focus Reporter for Windows to production versions. Eventually about half of British Gas' 22,000 end users should be active Focus Reporter for Windows, or SmartSuite users accessing corporate data, Harker said.

In addition, Harker said the information systems department is continuing to establish guidelines for end users to avoid the bad query syndrome — requests for enormous data files or inac-

System lineup

British Gas is using the following configuration for data delivery:

TOP TIER:
15 mainframes, including eight IBM models and seven from ICL.

MID TIER:
128 Digital VAXs and approximately 30 Unix boxes running the Oracle DBMS.

DESKTOP:
22,000 IBM PC clones.

DATA ACCESS METHODS:
Information Builders' EDA/SQL.

DATA ACCESS TOOLS:
Information Builders' Focus and Focus Reporter for Windows.

rate queries that will pull down the wrong information. Harker said IBI provides a tool called Smartmode for the IBM environment that automates this query management. For example, when a user launches a query, the system analyzes it and questions the user if the query seems unusual.

The good news is the tool helps keep queries clean, but the mainframe is not

supposed to be the primary near-access platform.

The IS unit is now waiting for a similar capability for Unix and Digital platforms, where the bulk of the user access is directed.

IS selects corporate data and extracts copies with a combination of homegrown and IBM extraction tools. It then transports that data to the Oracle databases. There are nightly and weekly downloads. Volatile data is moved each night, and second priority data is saved for the weekly run.

Behind the technical standards is a set of procedures that IS is trying to enforce. For starters, a year ago IS declared that it would no longer write reports for end users. Far from feeling dumped on, end users had long asked for a way to

cut their dependence on IS, Harker said.

IS is building a library of report and query programs and is encouraging users to rely on it. The idea is to access programs and then modify them for personal use.

While "we are trying to push the idea of not reinventing the wheel," users are not restricted from building their own ad hoc programs either, Harker said.



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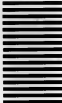
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Luck played a role in CA/EDS settlement

By Thomas Hoffman

The primary catalyst driving the ceasefire between Computer Associates International, Inc. and Electronic Data Systems Corp. in their 28-month legal battle was not so much an act of divine providence as a case of miscommunication.

"It was one of the misuses of the century," said Charles B. Wang, chairman and chief executive officer of CA, referring to the Feb. 22 groundbreaking meeting between CA President and Chief Operating Officer Sunny Kumar and EDS Senior Vice President Gary Fernandes. As it turns out, CA executives thought EDS' brass wanted to meet with them, and vice versa.

"Somehow we got our wires crossed; but once we started talking, we realized we weren't as far apart as we had thought," Wang said.

Despite months of attacking each other in the trade press, Fernandes said EDS' coming to terms with CA was not nearly as difficult as company outsiders

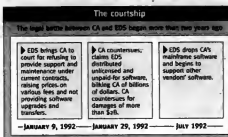
might have expected. "It was easy for me to put the past behind. I found [CA's] Sunny [Kumar] to be a very professional businessman," Fernandes added.

More often than not, contract disputes such as those between CA and EDS are naturally settled out of court, even when the tempers flare and the parties sue each other for billions of dollars, legal pundits said. After all, resolutions are generally more mutually beneficial than protracted legal skirmishes. "Settlements are better than dragging everything out in litigation," said Pamela Samuelson,

a law professor at the University of Pittsburgh Law School.

And although the CA/EDS settlement came too late for several joint ventures who found themselves caught between

the cannons — such as National Car Rental System, Inc. and First Fidelity Bancorp., Inc., both of which reached out-of-court settlements with CA — legal



minds share the resolution arrived in time for other prospective customers.

"Anyone who could have been caught in the cross fire has to be very pleased by this settlement," said Morgan Chu, an at-

torney at Irell & Manella, a Los Angeles law firm, who successfully represented Stac Electronics in its recent antitrust litigation against Microsoft Corp.

Peter Vogel, a Dallas-based attorney at Gardiner & Wynne, said he had been hearing rumors about an out-of-court resolution for the past three months. "What was at play here is that both parties had very difficult antitrust cases to prove," Vogel said.

Most antitrust cases take an average of 10 years to resolve, he said.

"To work out an amicable resolution in two-plus years is terrific — it would have been a very bloody trial," added Vogel, who also founded the computer section of the Texas state bar.

Wang, meanwhile, said he sees the new CA/EDS partnership as a way for CA to explore outsourcing. "Our E-mail and administrative systems are both about 20 years old, so that would make sense."

HP balances Unix vs. proprietary databases

By Mark Halper

When Hewlett-Packard Co. recently announced the latest release of its Alibase/SQL relational database, the company's platform of choice seemed to be its proprietary box rather than its Unix line.

While HP's Alibase/SQL 6.0 announcement two weeks ago included a strong endorsement from Glenn Osaka, general manager of the proprietary HP 9000 division, it contained not a single word from anyone in the HP 9000 Unix operation.

Users and analysts noted last week that such an emphasis makes sense for two reasons. First, these days HP is relying more than ever on cozy relations with the major third-party database vendors to help sell Unix minicomputers, and it has a hard enough time balancing those relationships. Any aggressive push by HP of its own database products to the Unix market could upset synergies with companies such as Oracle Corp., Sybase, Inc., Informix Corp. and The ASK Group, Inc., they said.

"There is kind of a dichotomy there in that HP and Oracle are partners," pointed out Ken Sketten, project engineer at the Naval Undersea Warfare Center in Keyport, Wash. "HP is clearly pushing the third-party vendors' databases, but they also have their own. I'd like to see more definition from HP managers on that. What does the future say about HP and Alibase 10 years from now?"

Options limited

Furthermore, unlike third-party products, Alibase/SQL runs on only one flavor of Unix — HP's HP-UX — and therefore does not run on any Unix machines except HP's. Many HP customers, mindful that they may eventually change hardware brands, find that discouraging, users and analysts said.

"The problem these days is you want some kind of portability," observed Rodger Lindquist, manager of business systems develop-

ment at Bio Rad Laboratories, Inc. in Hercules, Calif. "When you have companies that just sell software and they can go on lots of different platforms, it seems like that's a more acceptable method than Alibase's."

For example, when Portland Community College chose Oracle for its HP 9000 two years ago, it was aware that multiple platform compatibility generates application development and gives users more program choices.

"I don't see any application developer out there screaming that you better buy Alibase, but I see lots of them out there saying, 'My software runs only on Informix or Oracle or Sybase or Ingres,'" noted Sam Ellis, the company's vice president of information systems.

But, as pointed out in a report released recently by Datapoint Information Services Group in DeRan, N.J., HP faces little outside competi-

tion selling into the HP 9000 market. Alibase does face some hearty internal competition in that market, however, in the form of HP's more powerful but less relational database, Image/SQL. In a mature market that numbers about 60,000 installed HP 9000s, Image/SQL represents about 80% of database sales, according to Alibase product manager Maryann Gustafson.

Some industry sources said HP will not continue marketing two separate databases. For the time being, though, analysts said HP can always rely on a core set of buyers who are committed to HP hardware and software for the long run and owe little about cross-platform compatibility — even on Unix machines.

Judy Davis, an independent consultant in Lexington, Mass., noted that with Alibase 6.0, HP lowered the cost of ownership to HP 9000 users. And users have already been receiving out-of-ownership advantages with F0, compared with non-HP brands, she said.

AS/400

CONTINUED FROM PAGE 67

Notifications will start when customers reach 90% of their license quotas "to let them know the diversion in which they're going," Hildner said. Customers who exceed their quotas will be given a 30-day grace period to purchase more licenses, after which the license manager will shut off access to any users who are still not covered, she noted.

Scott Plummer, technical support project manager at Gannett Co.'s data center in Silver Spring, Md., said the license manager will make operating the AS/400 "a little more burdensome. It will be less easy to use now because you're going to have to pay attention to how many users you have."

However, that is not a bad requirement, as customers, Plummer added. "If we're getting into client/server, it's good for people to know who's connecting into their computers," he said. "There's too much prattling going on, and [computers] are liable for that."

Deonis Pyburn, vice president of information services at Instate-Care Pharmacy Services, Inc. in Woburn, Mass., was more wary of license management. "Having the user help

collect money, I'm not sure I like that," Pyburn said. "I have enough work to do." He added that he is waiting for a more detailed explanation of the new pricing policies from IBM.

Hildner noted that customers will be able to use the license manager to collect information on usage patterns via operating system commands that access the application programming interfaces (API) provided with the technology. The API is also being made available free of charge to application vendors.

The OS/400 license manager is a proprietary IBM implementation that sets the AS/400 apart from other IBM platforms. The company has adopted Gradient Technologies, Inc.'s IFOR/LS for OS/2 and ASX systems and is considering a similar move at the mainframe level (ENR/March 7).

Karen Cose, an analyst at Gartner Group, Inc. in Stamford, Conn., said going proprietary on the AS/400 will keep application vendors from having to pay Gradient for its tools. But Cose added that she expects IBM to eventually switch from the proprietary technology to IFOR/LS to further its client/server push for the AS/400.

"A proprietary license manager will ultimately have an impact on their client/server goals," Cose said. "In the client/server arena, a license manager has to go across multiple platforms and know various protocols."

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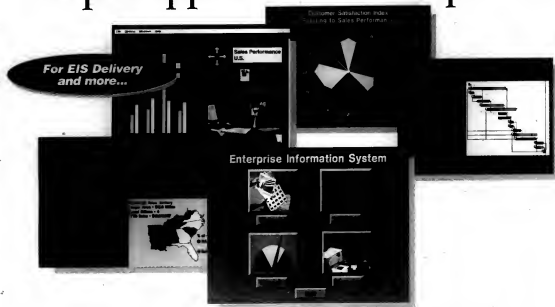
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Application Development

ORACLE ENDS YEAR LONG
CASE DELAY, IT
TEXT VENDORS PURSUE SQL, 77

Client/server turns to kids' stuff

Toy firm overhauls merchandise tracking

By Melinda-Carol Ballou

The Cabbage Patch doll cradled in the arms of a neighborhood kid was probably born in China. Tracking the journey of that doll—and other toys made in Hong Kong—into the U.S. is crucial for manufacturers to comply with U.S. customs laws.

Hasbro, Inc., a Pawtucket, R.I.-based toy manufacturer, recently moved to improve the quality of its product tracking and customs information. In fact, Hasbro moved from an unwieldy paper-based system to mainframe processing and then to a client/server architecture within a year and a half.

The dark ages

Prior to adding the tracking process to the mainframe early last year, Hasbro used a process for receiving and sending information about products and materials traveling between Hong Kong and the U.S.—a cumbersome process.

"The same piece of paper could be faxed back and forth three or four times before we could be sure that the merchandise had reached its port safely in Seattle and we knew that we owed



the government 'x' amount of dollars," said Larry Chappelle, staff specialist. "It was a lengthy and inefficient process."

Developers duplicated those

forms and used Trintec Corp.'s Knowledge Base Management System (KBMS) Intellect to incorporate critical data into the Trintec database, such as pricing factors and duty owed on particular products.

This allowed users to track information from Hong Kong back to U.S. headquarters. Users received on-line

updates about the location of shipments. Once the merchandise arrived in Seattle, customs payments were coordinated across electronic data interchange links to the federal government. The system ran off of

an IBM 3090 mainframe.

The Hasbro developers had just automated the transfer of this information to the mainframe when word came down from management late last year that mainframe processing was too expensive and too inefficient. They were told that they needed to downsize to client/server.

"The mainframe is an inaccessible beast—in rush season when we were trying to get a good response time to get stuff out the door, it was difficult," said Steve Marcolini, director of systems integration at Hasbro. "Hong Kong's day was our night, and it was a natural fit to take this application and move it off the mainframe."

Although this application was mission critical to Hasbro, it is not transaction-intensive—a key requirement when determining which applications should be moved to client/server at this point, according to Trintec. Primary candidates for client/server are departmental applications that do not require an enormous

Hasbro, page 77

ASK customers ponder future of products following CA buyout

By Kim S. Nash and Thomas Hoffmann

As the nifty-gritty work gets under way in melding The ASK Group, Inc. into Computer Associates International, Inc.'s stable, ASK loyalists are now wondering what will happen to the database and object-oriented technology they had as superior to that of rival products from Oracle Corp., IBM and others.

Still, the \$305 million deal came as a relief to many ASK customers who said they were fretting over the failing financial health of their vendor. Other ASK database and applications users worry that their products will fall behind technologically under CA's care.

Several ASK customers expressed uncertainty about CA's ability to improve existing ASK products.

"ASK has always had good technology but had marketing. With CA, we might get good marketing, but they don't know about our technology," said Michael Campbell, past president of the ASK Users Group.

Campbell said he fears that CA intends to cut many ASK workers, including research and development staff, without regard to promises ASK has made for future product enhancements. "Things are not going to work out for the users' benefit, not realistically," he said.

CA plans to interview all 2,000 ASK employees during the next four to six weeks to decide who to retain. "The way [CA Chief Executive Officer Charles Wang] put it to

us was that CA executives would pick out some 'keepers' from among our ranks, then let the rest go," an ASK spokeswoman said.

Wang addressed ASK employees the day the buyout was announced. But he did not specify the departments or type of workers he would keep, the spokeswoman said. "We have no information at all about how our products and strategy will fit [under] the CA umbrella," said an ASK insider who did not want to be identified. "It's rough."

Wang said no decisions regarding layoffs have been made [CW, May 23], but he tried to put a positive spin on the anticipated layoffs. "When we acquired Cullinet [in 1990, Cullinet chairman] John Cullinan probably put it best when he said, 'Charles let fewer people go than I would have if he didn't acquire the company,'" Wang said.

Analysis said the safest ASK product—the one least likely to fall by the wayside under CA—is ASK's Windows4GL. The object-oriented development tool gives CA another entrant into the desktop client/server development market. Further, Windows4GL works with ASK's own Ingres database, and also with Oracle, Sybase, Inc., Informix Software, Inc. and others.

The combination of openness and client/server provides a one-two punch that CA

would be smart to parlay into competition for PowerSoft Corp.'s PowerBuilder or Microsoft Corp.'s Visual Basic, said Herb Edelstein, an analyst at Entel Associates, a consulting firm in Potomac, Md.

CA has the monetary muscle to promote Windows4GL, where ASK was forced to back off an expensive marketing to cut costs, Edelstein said. "ASK was letting good technology go to waste because it just didn't have the finances to reach a wide audience," he added.

"One thing CA has been able to do is take advantage of the technology it acquires and incorporate it into a set of products," said Jeff Tash, president of Database Decisions in Newton, Mass. For example, Tash noted, CA smoothly moved Nantucket Corp.'s Clapper technologies into its CA-Visual Objects object-oriented tool, following its 1992 buyout of the Los Angeles-based software maker.

Giving it a chance

Some Ingres users were nervous, willing to wait out the transition before deciding whether to stick with existing products.

"I'm sure there will be some dead wood and maybe even some live wood cut [from ASK], but I can't run around changing all my Ingres applications until I see what CA has in store," said Dwight Coles, past president of the North American Ingres Users Association.

Coles is also a developer at RE/SPEC, Inc., an Albuquerque, N.M., database consulting firm where Ingres is the most prevalent database, with 80 licenses installed. RE/SPEC does about \$1 million worth of business annually with ASK. Coles said.

ON SITE

Hasbro, Inc.
Pawtucket, R.I.

Challenges: To increase performance and cut cost of running legacy Cabbage Patch dolls code by shifting to client/server. The system now-based customers information among the firm's Hong Kong manufacturing branch, part of entry in Seattle and headquarters in Pawtucket.

Technology: Client migration tools from AccuSoft, Inc., and tools for creating knowledge base from Trintec Corp.

Results: Streamlined workflow migration of client/server and significantly increased performance of some key functions.

Hello again

CA and ASK have crossed paths before. Several years ago, CA marketed CA-Univers, an IBM mainframe database clone of the Ingres relational database. The deal was done via a licensing agreement. CA linked with the University of California at Berkeley, where Ingres originated, according to Shihua An, president of Alre, Inc., a Port Chester, N.Y.-based consultancy.



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Turn to
Page 113

Oracle ends CASE tool drought

Long-awaited upgrades set to ship this week

By Kim S. Nash

■ After nearly a year's delay, Oracle Corp. last week unveiled upgrades to its computer-aided software engineering (CASE) products. Users of Oracle's latest database, Oracle 7, have gone without key CASE tools from the vendor that take advantage of triggers, stored procedures and other functions new in Oracle 7.

A directive from Oracle Chief Executive Officer Larry Ellison a year ago to put all future development tools on Windows, combined with the departures of high-level executives from the UK-based CASE group, contributed to the delay, according to users and Oracle insiders.

"Unix tools were put on hold while Windows tools were developed," acknowledges Richard Barker, former senior vice president at the CASE unit.

Oracle had ignored desktop developers who worked with Windows, so mandating that new tools be put on Windows "was a sound marketing decision," but it did cause delays," Barker said. He left Oracle in February after a decade of service for a post at OpenVision, a systems management firm also in England.

Barker joined Geoff Squire, former head of international operations at Oracle's UK office, who went to OpenVision in January. Ian Fisher was promoted from vice president of CASE marketing to vice president of CASE development after Barker left.

Indeed, a Unix version of CASE Dictionary 5.1 was already in beta testing at some Oracle sites when Ellison's directive came down, said Tony Ziemia, head of the CASE special interest group within the International Oracle Users Group.

Ziemia said he knows of at least one Oracle user who received that early beta and has built applications with it. But the bulk of Oracle CASE users waited. And they waited.

Unix shunted aside

Because Ellison announced that no Oracle tools would ship before Windows products were brought out, Unix-based Dictionary 5.1 was put on the back burner while Oracle engineers created a Windows edition, he said.

"We anticipated that we would have had the product six months ago," said Dave Heck, developer at Nationwide Life Insurance Co. in Columbus, Ohio.

Nationwide Life did not stop new applications development while it awaited the Unix version of Dictionary and other tools, Heck said, but the not knowing was frustrating.

Now Oracle says the wait is over. Dictionary 5.1, Forms 4.0 for Unix, Reports Generator 2.0 and a migration aid called CASE Exchange 2.0 are slated to ship by

month's end. The rollout includes several new features, including the following:

- Business and data modeling capabilities that allow for designing client/server, not just host-based, systems.
- The ability to build graphical user interfaces based on standards defined by developers and stored in Dictionary 3.1
- A choice of reports available through Reports Generator 2.0, such as tabular or matrix.

The new tools, part of Oracle's Cooperative Development Environment family, were designed to work with development products from Texas Instruments, Inc., LEMS, Inc. and other independent software makers, Oracle said.

Tired of waiting, some users turned to Oracle competitors for application development tools. Baltimore Gas & Electric Co., for example, brought in Windows-based client/server tools from Gupta Corp. when it did not foresee Oracle bringing out CASE 3.1 products in time

Oracle's case

1993 Leading worldwide CASE vendors by revenue	
Texas Instruments	\$160M
KnowledgeWare	\$80M
Hewlett-Packard	\$74M
Schib	\$74M
TOTAL MARKET	\$1.8B

Source: International Data Corp., Framingham, Mass.

for its fast-paced development schedule, said Joe Hunter, database analyst.

Make no mistake, Mistake! Moore Gas still holds a site license for Oracle's CASE products and plans to keep using the tools, Hunter said. But the utility was forced to buy Gupta to get a marketing application up and out late last year. "It was a quick application we needed to build," Hunter said. "We couldn't wait."

Other people who could not wait chose to do new development with older Oracle tools, such as Forms 3.0, said Ziemia, who is also president of Adronet Information Resources, an Oracle consulting firm in New York.

To maintain and enhance those applications with Oracle's new tools requires developers to regenerate them under Dictionary 5.1 (and related products). How simple that transition may be depends on how much customizing developers did after they generated applications with the older tool, he explained.

"If you modified extensively, then you'll have more trouble converting the programs than if you let them alone after Forms 3.0 spit them out," Ziemia said.

Standards groups eye SQL as model for text retrieval

By Ellen Booker

If a company owns more than one text database, chances are it will need to use more than one language to search through that textual information. That is because in the absence of a standard engine or interface for full-text searches, vendors have delivered a variety of proprietary approaches.

However, work is ongoing in standards groups such as X/Open Co. and the International Standards Organization (ISO) to come up with a more rational approach to full-text retrieval — one based on the widely adopted SQL model.

According to Paul Cotton, director of research at a Fulcrum Technologies, Inc. in Ottawa, the efforts are meant to standardize around SQL, first for application interfaces and then for the search engines.

"There's a lot of momentum building up to use SQL for text retrieval, said Carl Frappello, executive vice president, of Delphi Consulting Group in Boston. "Rather than having to learn multiple search languages, there will be a standard text search query, which could then go after any vendor's text database." Fulcrum's recently released Version 2.0 of its own engine, for instance, complies with Microsoft Corp.'s Open Database Connectivity (ODBC), a SQL inter-

face for Windows that implements the call-level interface (CLI) standard from the SQL Access Group and X/Open. CLI support means that engines such as Fulcrum's can be accessed via other ODBC-compliant software such as Microsoft's Word 6.0.

Expanded role

Meanwhile, work on extending SQL to permit text to be searched and manipulated is going on within the ISO, explained Cotton, editor of the ISO's

"SQL/Multimedia and Application Packages" (SQL/MM) document.

SQL/MM, which will be layered on the next version of SQL, will support object types such as text, sound, image and video. A draft international standard for the text portion of SQL/MM is not scheduled for release until 1997, although companies such as Fulcrum and others are already implementing versions.

For example, Oracle Corp. now has an Oracle SQL Text/Retrieval product for Oracle Systems 7.

For text retrieval companies that have built a business on proprietary approaches, the advent of SQL extensions may mean the end of product differentiation. "Performance, robustness, reliability, integrity and how we implement advanced search methods will be the distinguishing features," Cotton said.

users experienced immediate performance benefits. For example, making calls to the printer on the mainframe created onerous lag times due to the administration of queues.

In one case, a report that previously took four hours to print after the request was initiated was printed in four minutes with the client/server application as a result of the ability to dedicate hardware and cycle time to the process.

Worth the work

"The beauty and power of the PC is in its immediacy — you can get data down to the mainframe and cut and paste information out of the [Trinsic] knowledge base," said Jeff Esposito, lead programmer analyst at Hashbe.

However, making the shift to client/server from the mainframe was not entirely straightforward. Resolving incompatibilities between key functions in the previous code required "a lot of late Friday afternoons and several all-nighters," according to Esposito.

But the benefits in terms of better reporting and constant updates as to product status were well worth the shift and the three months required to make it, he said.

Hasbro

CONTINUED FROM PAGE 73

amount of mainframe updates, he said.

With this client/server project, the development group of three did analysis and design work "up front," Marcolini added.

Several other client/server projects attempted by the company were not as successful. In part because people were "thinking mainframe instead of client/server" and did not "subscribe to the dos and don'ts," he said.

Direct port

Because the migrating application had been recently developed and was working well, the group opted to port the code directly with minimal changes to preserve the investment in the Trinsic KBMS code.

"To do so, lead programmer analyst Debbie Stephenson used Aencobol, Inc.'s Aencobol/86 with "hardly any hand coding at all," she said. She moved the Cobol mainframe code to Windows and DOS running in PC LAN Token Ring environments.

Once the application was ported, end

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Management



DOWNWARD SPIRAL

Job satisfaction is **dropping**, but the **antidotes** are clear

By Candee Wilde

ARE YOU SATISFIED?

Job satisfaction declines with each rung down the corporate ladder. Fewer of today's technical workers say they are satisfied with their current jobs than last year.

Percent of Job Satisfaction Survey respondents who indicated they were either dissatisfied or very dissatisfied

Job level	1993	1994
Senior executives	77%	77%
Middle managers	72%	68%
IS professionals	67%	64%

Total 1994 survey respondents: 546; 1993: 770

First the bad news: Job satisfaction declined again this year at all levels of the information systems organization. More and more, IS managers and employees are feeling left out of the corporate vision and experiencing greater stress from heavier work loads.

On the bright side, however, many respondents to *Computerworld's* Eighth Annual Job Satisfaction Survey said their problems can be corrected with exposure to new challenges and technologies, greater freedom to make decisions and a clearer sense of their role in the overall organization. And while many may not like where they work, a majority are glad to be in the field.

"The things that are most important to job satisfaction are job security, training and the opportunity to contribute to IS with new ideas," says Hal Eckel, IS director at Haworth, Inc. in Holland, Mich. "The thing that motivates me most is the opportunity to contribute. I enjoy seeing the impact and influence that IS can have on the customer service, manufacturing and distribution processes. I welcome the opportunity

Job satisfaction, page 84

COMPUTERWORLD'S 8TH ANNUAL
JOB SATISFACTION
SURVEY **1994**



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JOB SATISFACTION 1994
SURVEY

CONTINUED FROM PAGE 84

to work with new ideas and concepts and to participate in the continuous improvement of the IS function."

But many IS employees feel those opportunities either aren't there or aren't clear. Leading the disenchanted are the IS professionals, whose reported levels of job satisfaction hit a recent low this year. And not only are more pro-

fessionals dissatisfied with their jobs, fewer say they are giving work their all.

Many IS professionals say they are struggling with more for less, more work and stress, and less appreciation from upper management and less direction and leadership in the IS organization. The result is that more professionals now say they are either somewhat or very dissatisfied with their jobs (more than 28% this year, compared with 21% last year).

However, the survey found that as you look higher in the IS organization, you find higher levels of job satisfaction. The number of senior executives and middle managers who say they are working to their fullest potential increased this year.

Of 540 IS employees surveyed, 77% of senior executives report they are somewhat satisfied or very satisfied with their work (the same percentage as last year), compared with 69% of middle managers (down from 72%) and 64% of IS professionals (down from 67%).

Although dissatisfaction with where they work is up, it's important to keep this in perspective. Most IS people throughout the organization—more than 60%—are very satisfied or somewhat satisfied with the work itself, and 62% report they are satisfied with their de-

partment as a whole. Nearly two-thirds say the IS department at their company is treated well and is well-compensated.

"IS is a very satisfying occupation if you like challenging work that requires you to master difficult new skills," says James Wetherbe, professor and director at the MIS research center of the University of Minnesota and Federal Express professor and director of the Center for Cycle Time Research at Memphis State University.

And in this age of flattened organizations, it's especially noteworthy that among those satisfied with their jobs, middle managers report gaining the most satisfaction as they respond to 1994's challenges: 42% say their level of satisfaction has increased this year, compared with 31% last year. They cite additional responsibility and autonomy, as well as exposure to newer technology, as the major reasons for improvement.

HIGH PERFORMANCE?

Report based on 1994 Job Satisfaction Survey, 540

"How do you view the level of JOB PERFORMANCE in your company's IS department?"

Improving

49%

37%

25%

Stable

16%

50%

56%

Declining

5%

13%

19%

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- More experienced and motivated staff
- New technologies provide greater challenges

TOP REASONS FOR A DECLINE

- Increased demands on a smaller staff
- No pride in work

professionals dissatisfied with their jobs, fewer say they are giving work their all.

Many IS professionals say they are struggling with more for less, more work and stress, and less appreciation from upper management and less direction and leadership in the IS organization. The result is that more professionals now say they are either somewhat or very dissatisfied with their jobs (more than 28% this year, compared with 21% last year).

However, the survey found that as you look higher in the IS organization, you find higher levels of job satisfaction. The number of senior executives and middle managers who say they are working to their fullest potential increased this year.

Of 540 IS employees surveyed, 77% of senior executives report they are somewhat satisfied or very satisfied with their work (the same percentage as last year), compared with 69% of middle managers (down from 72%) and 64% of IS professionals (down from 67%).

Although dissatisfaction with where they work is up, it's important to keep this in perspective. Most IS people throughout the organization—more than 60%—are very satisfied or somewhat satisfied with the work itself, and 62% report they are satisfied with their de-

Senior executives	Middle managers	IS professionals
49%	37%	25%
16%	50%	56%
5%	13%	19%

Putting the employee first

Rosenbluth International, the Philadelphia travel services giant, measures employee satisfaction with an "employee happiness index."

Twelve a year the company meets with employee representatives to get feedback on their level of satisfaction, work fulfillment, benefits and so on. The compiled results create the happiness index.

Chief executive officer Hal Rosenbluth, author of *The Customer Comes Second*, has taken other steps to keep employees happy, including the following:

- Participants in the company's "Associate of the Day" program, which is held three days a week, can spend an entire day with Rosenbluth or the vice president or director of their choice. This allows the company to stay in touch with the needs and aspirations of employees as well as identify future leaders.
- To stay in touch with middle managers' needs, Rosenbluth meets with them at least eight times a week, asking them to evaluate the morale and effectiveness of their departments, make suggestions for improvements and discuss their personal career goals.
- The company does "little things," such as celebrating each employee's birthday and anniversary. "Jans days," exchange programs among offices, department and positions, and office lunches where everyone brings a different salad ingredient and creates a giant salad bar.



Nearly one-fourth of the respondents to Computerworld's Job Satisfaction Survey reported that their companies do nothing to measure employee satisfaction, 15% use employee surveys and nearly 34% rely on informal meetings between managers and staff members.

For those middle managers and senior IS executives who report decreased satisfaction, lack of direction and vague corporate mandates are cited as the most troubling problems. These opinions are shared on the professional level as well.

Temperatures rising

Meanwhile, downsizing and reorganization continue to take their toll in job-related stress and lowered morale. Reductions in staff size are creating stress throughout the organization, and work loads continue to increase, as do demands on IS from business units.

The survey indicates that companies have not done enough to address the issue of work loads, particularly in the aftermath of downsizing and reorganization. Feeling overworked is by far the greatest cause of stress reported by respondents throughout the organization.

For IS professionals, in particular, concern that mainframe skills are becoming outdated adds to the burden. Mainframe programmers and analysts must acquire a whole new set of skills to work in distributed computing environments, and for many, these demands erode job satisfaction and increase stress.

These problems will not be solved by sending the IS department to stress-reduction workshops, says Robert A. Zawacki, a longtime professor and the KPMG Post Modernist distinguished scholar-in-residence at the University of Colorado in Denver.

"We've downsized [information technology] organizations 30% to 35%, [but] we haven't reduced the work load," Zawacki says. "We have to do some bureaucracy bashing, some revenue engineering. We need to question every report, every measurement, every approval level and every meeting and say, 'Do we still have the resources to do this, and is it necessary?'"

Less administrative work and more time to concentrate on technological challenges would increase job interest and satisfaction, says Thomas Smith, vice president of IS at Midwest Security Insurance Co. in Olathe, Mo.

"We have more things to do and no more people to do them," Smith says. "We've become part of a much larger organization, and they want everything to have a formal request, review and approval, rather than just doing it. We're more task-oriented, and they are more procedure-oriented."

Overwork, no challenge, yes

Wetherbe says there is no question that most IS departments are trying to get more work done with fewer people, but responses from all three levels reveal that more work—provided that it is challenging—can be a motivator for many technical people.

"IS people are attracted to the excitement and adrenaline of mastering new skills and being challenged. The ones who aren't get out of it very quickly," Wetherbe says.

Those who aren't challenged by the need to master new skills may be in for rough times. The dramatic move from mainframe to client/server and from traditional software development to object-oriented creates "a tremendous opportunity for the best and the brightest. [But] average systems people are very vulnerable, and that creates satisfaction problems," Wetherbe says. In a typical organization, 20% to 25% are failing to develop new IS skills, he adds.

The experience of Ellen Haskerman, MIS manager at Dynamics Corp. in West Lebanon, N.H., bears Wetherbe out.

Job satisfaction, page 86

Management

COMPUTERWORLD'S 5TH ANNUAL JOB SATISFACTION SURVEY 1994

TOTAL SURVEY RESPONDENT BASE: 540

How satisfied are
you with your job?

What contributed the
most to your increase
in satisfaction?

PERCENT WHO INDICATED AN INCREASE IN
SATISFACTION, TOP 3 RESPONSES LISTED

What contributed the
most to your decrease
in satisfaction?

PERCENT WHO INDICATED A DECREASE IN
SATISFACTION, TOP 3 RESPONSES LISTED

Are you satisfied with your
decision to work in IS?

Is job satisfaction or
career advancement
more important to you?

How would you rate your
stress level as compared
with a year ago?

Do you feel you're working
to your fullest potential?

What motivates you?

MULTIPLE RESPONSES ALLOWED, TOP 5 LISTED

What could increase
your job satisfaction
if improved?

MULTIPLE RESPONSES ALLOWED, TOP 5 LISTED

What skills do you
feel IS managers need
in order to motivate
their staffs?

MULTIPLE RESPONSES ALLOWED, TOP 5 LISTED

Senior executives

PERCENTAGES ARE BASED ON
100 RESPONDING SENIOR EXECUTIVES

Dissatisfied	Neutral	Satisfied
15%	8%	77%

BASE 95	
Increased authority/ freedom in decision making	19%
Changed jobs/companies	19%
Promotion/pay increase	14%

BASE 1	
Change in management	33%
Lack of challenges and opportunities	33%
Lack of staff cooperation	17%

1994	
YES	83%
NO	2%
NEUTRAL	15%

Job satisfaction	Career advancement
93%	7%

More stress	Same	Less stress
51%	37%	12%

YES	NO
42%	58%

Salary increases	24%
The work itself	23%
Public recognition	14%
Personal congratulations	13%
Increased responsibilities	10%

Salary	61%
Nonmonetary recognition	56%
Availability of training	53%
Opportunity for advancement	53%
Job security	48%

Ability to delegate	58%
Willingness to champion employees	54%
Flexibility	52%
Ability to give feedback	52%
Business sense	47%

Middle managers

PERCENTAGES ARE BASED ON
248 RESPONDING MIDDLE MANAGERS

Dissatisfied	Neutral	Satisfied
21%	11%	68%

BASE 95	
Increased authority/ freedom in decision making	26%
Exposure to newer technology/new challenges	18%
Good relationship with management	15%

BASE 38	
Lack of leadership direction	27%
Work overload/no recognition	16%
Change in management	11%

1994	
YES	83%
NO	4%
NEUTRAL	13%

Job satisfaction	Career advancement
89%	11%

More stress	Same	Less stress
61%	32%	7%

YES	NO
88%	62%

The work itself	27%
Salary increases	27%
Increased responsibilities	13%
Public recognition	12%
Personal congratulations	10%

Salary	67%
Opportunity for advancement	62%
Job security	54%
Availability of training	52%
Nonmonetary recognition	51%

Ability to delegate	57%
Flexibility	55%
Ability to give feedback	53%
Willingness to defer to knowledge of subordinates	52%
Business sense	43%

IS professionals

PERCENTAGES ARE BASED ON
157 RESPONDING IS PROFESSIONALS

Dissatisfied	Neutral	Satisfied
29%	7%	64%

BASE 37	
Changed jobs/companies	27%
Increased authority/ freedom in decision making	24%
Exposure to newer technology/new challenges	19%

BASE 35	
Change in management	17%
Work overload/no recognition	14%
Understaffed/overworking	11%

1994	
YES	81%
NO	4%
NEUTRAL	15%

Job satisfaction	Career advancement
85%	15%

More stress	Same	Less stress
68%	26%	6%

YES	NO
25%	72%

Salary increases	28%
The work itself	26%
Increased responsibilities	12%
Public recognition	9%
Promotions	7%

Salary	67%
Opportunity for advancement	62%
Job security	56%
Relationship with manager	53%
Bonuses	51%

Ability to give feedback	51%
Organizational skills	50%
Willingness to defer to knowledge of subordinates	50%
Ability to delegate	44%
Willingness to champion employees	42%

COMPUTERWORLD'S 5TH ANNUAL

JOB SATISFACTION SURVEY 1994

CONTINUED FROM PAGE 84

"My people are being asked to handle increasingly difficult tasks," she says, and for some that means job satisfaction is decreasing. "It's wedding out the superperformers from the nonperformers."

But for others, the opposite can hold true, and it is these difficult tasks that can bring the greatest challenges and rewards.

For IS professionals such as Jon LaFreniere, a database applications analyst at Mead Corp. in Eagan, Minn., job satisfaction increases as "the industry moves at 150 miles per hour. We're heading into new frontiers. We're not standard MIS, we're a bunch of computer scientists."

Power of communication

While many IS managers and professionals express a similar love of technological advancement, some find the new focus on business and "people" skills daunting. And many IS employees at all three levels want to send the same message to their superiors: They want better communication.

Many senior IS managers are frustrated by the lack of direction from general management on goals for the IS department. Middle-level managers often feel frustrated at the lack of strategic di-

rection and defined expectations from senior executives.

And in turn, "Declining job satisfaction is coming from a lack of good feedback by IS managers," Zawacki says.

Managers need to learn how to give people the strokes they need, Zawacki says. Working in an atmosphere where goals are clearly stated and good performance is recognized and rewarded can also impact job satisfaction.

Stephen Enk, international MIS manager at Moler, Inc. in Lisle, Ill., says job satisfaction is declining in his department because the staff is uncertain about how the move from a mainframe environment to a client/server system will affect them. The two-year project is nearly complete, but no clear strategies or objectives have been presented to the IS group, he says.

"I'm not sure that the project is being handled as well as one would like," Enk says. "Plan-

Companies must put their people first. Yes, even before their customers.

—FROM *The Customer Comes*
Second BY HAL ROSENBLUTH

ning, understanding and really identifying where we're going — communication — would help reduce stress."

In contrast, Eccles says that job satisfaction is on the rise for him and his staff in the wake of a "Cobol environment to a rapid application development environment." The IS department understands how important the project is to the company's overall performance.

Department heads who fail to communicate sometimes prevent the corporate vision from trickling down to the people who are charged with carrying it out, Eccles says.

Improving job satisfaction

How can companies improve the level of job satisfaction among IS employees at all levels? Not surprisingly, the first thing many say is pay more money.

But given a fair level of pay, the key factors are contributing to job satisfaction are opportunities for advancement and performance recognition. And most importantly, IS employees at all levels want a clear role in the organization, as individuals and as a department.

As IS executives strive to develop plans that will steer their organizations through these times of rapid technological change and downsizing, middle managers concentrate on carrying the new vision to their staffs and IS professionals struggle to master new skills, there is promise that job satisfaction will return to the high levels reflected in the mid-1980s.

It will require better communication, training, performance recognition and new technological challenges. Anything less will clearly be unsatisfactory.

Wilde is a free-lance writer in Easton, Conn.

NO SATISFACTION?

Representative data from 1994 Job Satisfaction Survey 540

"How do you view the level of job satisfaction in your company's IS department?"

Improving**29%****22%****12%****Stable****54%****42%****43%****Declining****17%****36%****45%****TOP REASONS FOR IMPROVEMENT**

- Clear management goals
- Moving into new technologies

TOP REASONS FOR A DECLINE

- Leadership problems
- Downsizing, layoffs

**Measure up**

Given the high cost of salaries, benefits and turnover, it is surprising that few companies attempt to find out how employees feel about their jobs and what can be done to make them happier and more productive.

Hartford Insurance Group's IS executives turned to an outside expert in the field to seek a concrete measure of job satisfaction and morale. They selected a tool called the Job Diagnostic Survey/Information Technology, developed by Robert A. Zawacki, a KPMG Peat Marwick distinguished scholar-in-residence at the University of Colorado.

The survey asks respondents to rate nearly 40 components of job satisfaction on a scale of one to seven.

Examples include skill variety, autonomy, task significance, feedback from supervisors and clearly defined career path. These numeric ratings can be compared within the company and with a database of 200 companies and 18,000 computer personnel that Zawacki has developed and maintained for 20 years.

Tom Street, retired director of information management at the Hartford-based insurance company, says using the survey allowed the company to identify two areas that, if improved, could bolster job satisfaction: communication and training and development.

As a result, the company created the "Person-to-Person" program under which employees and supervisors meet four times a year to discuss issues of mutual concern.

"When we reassessed satisfaction three years later, we saw significant improvement in most of the numbers," Street says. (This corresponds with the results of the *Computerworld* survey, which indicates that increased training would improve both job satisfaction and performance.)

The IS department at Norwest Bank in Minneapolis also used Zawacki's survey to measure employee satisfaction.

"We did it in conjunction with creating career tracks, new job paths, that we hoped would satisfy people in different job groups," says Judy Pennington,

who was vice president of Norwest Institute of Technology, the company's training and development group, at the time of the survey. (She is now vice president of technology at IDS Financial Services.)

As a result of the program, the company created parallel career tracks for IS professionals who desired to advance but had no interest in management, she says.

"We created a reward for technical expertise to make sure we didn't force technicians into management roles," Pennington says.

The firm also learned that many people in the organization felt they were not being challenged enough, that they did not have enough autonomy and that training was not adequate.

Even informal discussions between managers and staff members, if acted upon, can be used to track job satisfaction and make changes in the organization, according to M. Lewis Terras, vice president of technology at the University of Miami in Coral Gables, Fla. He meets regularly with his managers and staff members "to see if they are satisfied and how [can] help. We talk about how the industry is developing."

Terras says through these meetings he has found that people's job satisfaction is directly proportional to "public praise on the back. Second comes new things to work on, and money is third." —Candace Wilde

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Calendar

JUNE 12-18

Applied Dynamics International Users Society '94, Ann Arbor, Mich., June 12-13—Contact: Applied Dynamics International, Ann Arbor, Mich. (313) 875-1300.

The Third Annual Corporate Technical Revolving Conference, Denver, June 12-15—in conjunction with the 1994 Information Systems Educators Conference. Sponsored by *Computerworld*. Contact: Conference Int'l Inc., Framingham, Mass. (603) 485-0254.

SIB '94, San Jose, Calif., June 12-17—Sponsored by the Society for Information Display. A display of technology, systems, products and applications. Contact: Mark Oudshoorn, Pulcinella Institute for Research Services, Inc., Arlington, Va. (703) 486-7111.

Middleware Technologies and Products, Dallas, June 13-14—Theme: Reducing the complexity of distributed application development. Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-8000.

NetSec '94, San Francisco, June 13-15—Contact: Computer Security Institute, San Francisco, Calif. (415) 965-2218.

Retail Systems '94, Washington, June 13-15—Contact: Retail Systems '94, Newton Upper Falls, Mass. (617) 527-4803.

23rd Annual Meeting Windows of Opportunity, Reno, Nev., June 13-17—Contact: M. Thelander, Association, Silver Spring, Md. (301) 431-0070.

Advanced Speech Applications & Technologies '94 Conference & Exposition, San Jose, Calif., June 14-15—Contact: Monique Boreman, Interactive Technologies Group, Houston, Texas (713) 874-6837.

Re-engineering Your IS Architecture: Client/Server & Network, Atlanta, June 14-16. Also scheduled in San Francisco on Aug 16-18. To register on Sept. 7-8 and Washington on Oct. 4-6—Contact: Digital Consulting Inc., Andover, Mass. (508) 470-3960.

SwiWorld '94 Conference & Exposition, San Francisco, June 14-16—Contact: Lynn Fullerton, IDG World Expo, Framingham, Mass. (508) 879-4700.

New & Emerging Communications Technologies, Boston, June 16-17—Topics: ATM, SMDS, frame relay, SONET, mobile, cordless and FDDI in networks. Contact: International Institute for Learning, Inc., New York, N.Y. (212) 738-0103.

Art Tech '94, San Francisco, June 16-18—Theme: Technical aspects of interactive development from interactive storyboarding to cross-platform authoring tools. Contact: Tim Higgins, Murphy's Output on the Digital Frontier, Orinda, Calif. (916) 239-4547.

Tutorial Week '94, Los Angeles, June 16-18—Topics: "Using AI Techniques in Commercial Applications," "Interconnecting LANs and WANs" and "Introduction to C++." Contact: Dave Oppenheimer, Association for Computing Machinery, Los Angeles, Calif. (310) 476-4019.

CompuFest '94, Minneapolis, June 17-19—Con-

AMA seminars focus on leadership skills

The American Management Association is hosting a series of seminars that focus on leadership in the workplace. The seminars are scheduled for various dates throughout December and will be held in several cities in the U.S. and Canada.

In the area of management skills, seminars that will be offered include "Managing Technical Professionals," "Successfully Managing People," "Developing High Performance Teams" and "Managing Effectively in a Deregulated Environment."

Leadership seminars include "Leadership Skills and Team Development for Technical Professionals," "Leadership and Team Development for Managerial Success" and "The Learning Organization." Strategic management seminars include topics such as strategic outsourcing and strategy implementation.

Information systems seminars focus on such areas as strategic information systems planning, joint application development, re-engineering the IS organization and information resource management.

For more information, contact the American Management Association, PO Box 319, Saratoga Lake, N.Y. (518) 891-0005.

act: National Association of Individual Investors, Royal Oak, Mich. (800) 775-0394.

JUNE 19-25

Object-oriented Programming With C++, Ann Arbor, Mich., June 20-21—Two-day lecture and hands-on programming course focusing on the basic ideas of object-oriented design and programming with C++. Contact: University of Michigan, Ann Arbor, Mich. (313) 764-5400.

A/E/C Systems '94, Washington, June 20-23—Topics include: "Using Technology to Meet Federal Requirements/Regulations" and "The Computer-Effective Project Manager." Contact: Sharon Price, A/E/C Systems '94, Newington, Conn. (203) 685-0153.

Computer Tools and Client Demands Conference, Washington, June 22—Theme: "New Methods for Architectural Practice." Topics include: How should the process of delivering architectural services change in the face of new technologies? How are client needs driving changes in service delivery technologies? How can successful firms redesign technological processes without sacrificing the keys to successful practice? Contact: The American Institute of Architects, Washington, D.C. (202) 638-7200.

ComTarget User Group Meeting, Burlington, Mass., June 22-23—Contact: Amy Schenk, Dimensional Insight, Burlington, Mass. (617) 229-6111.

Re-engineering the Order-to-Delivery Cycle, Chicago, June 22-23—Contact: International Quality & Productivity Center, Upper Merion, N.J. (201) 793-4481.

Object-oriented Analysis, Design and Databases, Ann Arbor, Mich., June 22-24—An overview of the variety of engineering, scientific and business applications where the object-oriented approach is superior to the classical relational approach. Contact: University of Michigan, Ann Arbor, Mich. (313) 764-8490.

Re-engineering: The Implementation Perspec-

ive, Cambridge, Mass., June 22-24—Michael Hammer from the Centre for Re-engineering Leadership will provide an introduction to the concepts and objectives of re-engineering with an analysis of the business factors driving it. Contact: Hammer and Co., Cambridge, Mass. (617) 554-5555.

1994 International Summer Consumer Electronics Show, Chicago, June 22-25—Contact: Electronic Industries Association, Washington, D.C. (202) 457-8700.

CreaTech & Interact, New York, June 22-23—Two-day conference focusing on advertising and marketing that use multimedia technology. Contact: Cynthia Upton, Electronic Industries Association, Washington, D.C. (202) 457-8728.

JUNE 26-JULY 2

CAUSE Management Institute, Boulder, Colo., June 26-30—Predefined development program for managers of information technology in higher education. Contact: CAUSE, Boulder, Colo. (303) 445-4430.

Database & Client/Server World, Boston, June 29-30—Contact: Digital Consulting Inc., Andover, Mass. (508) 470-3960.

PC Expo, June 29-30—Contact: Bruno Berthelme, Inc., Fort Lee, N.J. (201) 346-1400.

Project Leadership Conference, Chicago, June 29-30—Theme: Making good project managers into great leaders. Contact: Sophia Zernan, Applied Business Technology, New York, N.Y. (212) 210-0945.

RM35: The Relational DBMS Silver Anniversary Conference, Boston, June 29-30—Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3960.

JULY 1-16

1994 APAC/APPN Technical Conference, Boston, July 1-15—Keynote speaker: Ellen Hancock, IBM's senior vice president of networking solu-

tions. Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-8005.

Fourth Annual NTIS/NCST Conference, Boston, July 14-15—Theme: Japanese scientific and technical information. Contact: National Technical Information Service, Springfield, Va. (703) 487-8918.

JULY 17-23

Configuration, Performance and Storage Management for Enterprise Client/Server Systems, Washington, July 20-21—Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-8005.

The Premier Conference for Artificial Intelligence Applications on Wall Street and Worldwide, New York, July 20-21—Focus: "Developing and Profiting from Advanced Technologies Trading and Asset Management." Contact: IBC USA Conferences, Inc., Southshore, Mass. (508) 491-6400.

JULY 24-30

Systems Software Conference '94, Orlando, Fla., July 24-29—Contact: Computer Associates International, Inc., Ithaca, N.Y. (606) 922-5953.

New Directions in Cellular '94, Washington, July 26-27—The conference will focus on the competitive outlook for cellular-based personal communications services (PCS), implementation challenges for line division multiple access, code division multiple access and global system for mobile communications; wideband digital radio technology and economics; PCS spectrum allocation and the service process; and Cellular Digital Packet Data user demand analysis, new antenna technology and fraud control. Contact: Telecommunications, McLean, Va. (703) 756-0156.

Windows World '94, Chicago, July 26-28—Focus: Implications and impact of enterprise computing and the benefits of implementing a business-oriented information technology strategy. Contact: The Interface Group, Needham, Mass. (617) 440-0650.

JULY 31-AUG. 6

Tools USA '94, Santa Barbara, Calif., Aug. 1-6—Contact: Tools USA '94, Santa Barbara, Calif. (805) 856-1000.

International Storage Systems Symposium, San Francisco, Aug. 5-6—The four-day conference, devoted exclusively to storage, will provide 60 separate, in-depth technical sessions. Contact: Skill Dynamics, Dallas, Texas (214) 806-7200.

AUG. 7-13

Share Summer 1994 Meeting, Boston, Aug. 7-12—Keynote speaker: Leslie V. Gerstner, IBM chairman and chief executive officer. Contact: Share, Chicago, Ill. (212) 822-0632.

The Asynchronous Transfer Mode (ATM): Foundation for Broadband Networks, Denver, Aug. 9-9. Also showing in Troy, Mich., on Oct. 10-11; Philadelphia on Oct. 24-25; and in Atlanta on Oct. 26-27—Contact: Lori Ann Milne, International Institute for Learning, Inc., New York, N.Y. (212) 756-0177.

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In Depth

Junk my

SOUND OFF!

For information technology managers, the mainframe is today's dinosaur, one IT chief says big from looks you into an arcane way of doing business. His opponent says you're wrong to handle large-volume, centralized-strength processing on anything other than a big machine.



you be

By L. JOHN SEVERSON

Information technology managers must provide the aggressive leadership to dismantle and blow away old mainframe systems while creating new applications based on plug-and-play flexible network-based systems. Those who do not are handicapping their companies. They are being derelict in their responsibilities by preventing their organizations from gaining

Severson is vice president of information technology and change agent at The Trane Co.'s commercial air conditioning group in La Crosse, Wis. Trane's re-engineering initiative is aimed at expanding the company's leadership in the commercial heating, ventilation and air conditioning industry.

the agility required to compete.

At The Trane Co., our business executives were very receptive to the idea that our mainframe systems — very elegant IBM MVS systems that run hundreds of thousands of transactions per day — have been standing in the way of reaching business goals. In fact, when I suggested we blow them up, they got excited and wanted to go out and find the explosives.

Our "explosives" turned out to be an outsourcing plan, put in place about three years ago, that essentially unfettered us from our mainframes. We don't "possess" mainframes anymore in the literal sense of the word.

Our mainframe systems were built by well-intentioned people. But they were built for yesterday's business needs. Such systems reflect layers of arcane business processes established to support the growth, control and rigid

TRANE'S JOHN SEVERSON: 'WHEN I SUGGESTED WE BLOW [OUR MAINFRAME SYSTEMS] UP, [THE BUSINESS EXECUTIVES] GOT EXCITED AND WANTED TO GO OUT AND FIND THE EXPLOSIVES.'

structures of another business era.

We want to attack and reconstitute our computing environment to squash time and waste from our business cycles. We want to gain advantages by applying new computing capabilities. We want to have processes in place that have a real consequence for our business.

That's why we embarked on a massive re-engineering effort at about the same time we got rid of our mainframes. This Business Transformation Project, as we call it, is aimed at our order-fulfillment process. It's about shrinking office cycles, shrinking paper cycles,

Severson, page 66

mainframe?

no wa

BY JOE VINCENT

Would you transport large shipments of machine tools interstate using a fleet of station wagons? Would you drive an 18-wheeler to the supermarket to pick up a few bags of groceries? Of course not. Most of us are bright enough to recognize that there are solutions and tools of varying sizes for problems and tasks of varying sizes.

Why, then, do the LAN zealots insist that client/server, sells mainframes, is the one-size-fits-all answer to every computing requirement?

It can't be because LAN applications are less expensive than mainframe applications. You'd have to have been in a coma for the past year not to have heard of the studies that show that the five-year costs of applications deployed on LANs can be up to 300% greater than costs of mainframe-centric applications. Yet you still hear of those who peddle client/server to technologically naive and gullible executives on the promise of substantially reduced computing expense.

Spend and spend some more

Granting LANs a five-year cost amortization cycle is unrealistically generous; they simply don't last that long. I read one account of a 50-PC, 386-based LAN that had been deployed for a little over two years. The company was planning to replace all 50 PCs with 486-based machines "to really do it right." I suppose it's now ready to replace the 486-based PCs with Pentiums to really, really do it right.

Think of the cost of LANs as being analogous to the cost of rearing children — when you take that new baby home, don't put your checkbook away just yet; the expenses have barely begun.

The bloated costs of client/server are becom-



HUMANA'S JOE VINCENT: 'IT MUST CAUSE [LAN CULTISTS] AN END OF CONSTERNATION THAT THE MAINFRAME NOT ONLY REFUSES TO DIE BUT SEEMS IN REMARKABLY GOOD HEALTH.'

ing so obvious that they can no longer be ignored. Client/server extremists are regrouping. "Well, yeah," they say, "client/server does cost a lot more, but you get tons of flexibility and empowerment and enabling and other good stuff." Sorry, I'll let somebody else make the proposal to management for an extravagantly expensive solution that offers nothing beyond some trendy intangibles and a negative return on investment.

Like the minicomputer apostles who preceded them by more than a decade, LAN cultists have been chasing the "mainframe is dead" mantra for years. It must cause them no end of

consternation that the mainframe not only refuses to die but seems in remarkably good health. According to IBM, the number of new mainframe MIPS installed in 1993 was more than double the number installed in 1986. Total installed mainframe MIPS grew 26.4% annually from 1985 to 1993.

Where credit is due

If there has been any tempering of mainframe demand at all, it has resulted from the prolonged economic downturn from which we and the rest of the world are just now emerging. Like the rooster that thought his crowing made the sun come up, the LAN disciples have fallen all over themselves to seize credit for every perceived blip in mainframe installations.

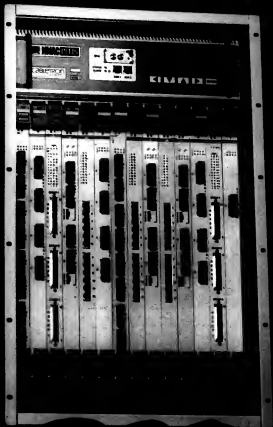
What does the mainframe do better than LANs? For now, almost everything. Data man-

Vincent, page 27

Vincent is director of technical services at Humana, Inc., a health care management company in Louisville, Ky. Contrary to popular belief, he is not a PC hater, having several PCs at home and a LAN- and mainframe-attached microcomputer in his office.

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CONTINUED FROM PAGE 92

shrinking all the processes associated with order fulfillment.

To support these new re-engineered processes, we're building a new computing infrastructure — an internetwork running peer-to-peer computing — that will help us deploy the applications we're creating. We're preparing ourselves to do business effectively, rapidly, agilely.

And I absolutely believe we could never do that with our mainframes.

I've talked to some of my colleagues, and a lot of them haven't come to these realizations. They cling to their obsolete computing world and its relics fondly, even passionately. It has been comfortable under that Blue blanket and such a frightening world outside its warm folds. But the simple scene, the gentle pace, a carefree world in which things worked together in a bundled state are over.

Outside those blankets, a lot has been going on. Users have been increasingly dissatisfied with our inability to quickly provide solutions to their needs. A major change to a host-based system, for instance, typically takes a minimum of 18 months to complete. Why? Because mainframe systems have been added to, revised, modified and adapted. The intricacies of this cobbled integration make it difficult, if not impossible, to make a major change quickly.

Contrast this scene with the dramatic reductions in computing costs and quantum improvements in computing capabilities we get with easy-to-use PCs. In essence, users can get a lot of things done quickly with microcomputers. The pace of change has put heavy pressure on companies to do business differently... better, faster and more cost-effectively.

These two powerful energy streams have converged and created a channel in which technology can be readily applied to do business far more effectively.

The most prescient companies are starting to shift from mainframe-centric computing to network-based, or client/server computing. Even companies that haven't given this much thought may have no choice. People will find ways to interconnect their desktops with or without our help.

While mainframe proponents love to point out that networked computing is not necessarily cheaper than mainframe computing, cost is really not the issue here. Cost is irrelevant because client/server computing is, in the words of re-engineering guru Michael Hammer, "inevitable." That is, it will occur because mainframe systems cannot satisfy rapidly changing business needs.

Admittedly, leaving behind the se-

soned mainframe environment and moving to a brave new world is rather scary. Some client/server tools and services are not mature. But better tools are coming along, and there's no time to waste waiting until every one of them is perfected. You risk the danger of putting your company at a severe disadvantage if you don't get on with building a new infrastructure now.

Building that new infrastructure goes hand in hand with building new skills in

your organization. To that end, we've done a skills evaluation in my organization that identifies the skills needed for the jobs to be. We are in the process of defining the training required to acquire those needed skills.

It's important that companies don't fall behind in the skills area.

We, as information technology managers, have the responsibility to lead and facilitate change. Those who cling to their Blue blankets will find themselves

swept into a meaningless eddy with the world rushing by or, worse, inundated by an unmanaged flood of peer computing that will well up in their organizations, ravaging the internal business landscape for many years.

Is your business management satisfied with what it gets from information technology? Are you providing the leadership your firm needs to gain advantage from enabling technology? It's time to get out from under your blanket.

We're preparing ourselves to do business effectively, rapidly, agilely. And I absolutely believe we could never do that with our mainframes.

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Vincent

CONTINUED FROM PAGE 93

agement, resource sharing, security, backup and recovery, availability and data integrity are just a few of the many areas in which mainframes outshine LANs, particularly for large volumes of data and large numbers of simultaneous users.

In our shop, we handle 7.3 million on-line transactions (CICS, DBMS, DB2 and TSO) and do 212 million I/O

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SOUND OFF!

have another 114T bytes of tape data capacity. And we're only an average mainframe shop!

If there is any executive who wants to play "bet the company" by putting this kind of volume on a swarm of LANs running software written in Visual C++ by amateurs, he had better have an updated resume in hand.

The mainframe environment also offers something else that the client/server environment desires desperately: long-term computing professionals with the expertise to develop and manage applications that can span companies and continents.

Decades ago, mainframes solved and dismissed most of the problems that are befuddling the client-server enthusiasts, who are still trying to figure out how to keep corporate electronic-mail directories in sync.

Take disaster recovery. We declare a simulated disaster twice a year in which we go to a hot site with nothing other than what's stored in off-site security facilities. (The assumption is that someone's dropped "the big one" on our data center, and nothing is available from there.) We have to bring up our data center at the hot site and be prepared to resume business in less than 24 hours. Do you think most LAN installations are ready to do the same?

I think of those scenes after the World Trade Center bombings of shocked technicians rolling out laundry carts loaded with PCs. Backups stored in the building were worthless because they were contaminated by combustion by-products. There were apparently more than 900 LANs in the World Trade Center; I wonder how many businesses went belly-up after losing LANs and their data?

Not the end-all

It is pure hubris for LAN fanatics to think that they alone have the answer to every computing problem before they even know what the problems are.

The future of computing is in applications that span platforms, from PCs to mainframes. Our challenge as computing professionals is to be open and objective about sizing applications to platforms.

The mainframe is the only platform that can handle heavy-duty, industrial-strength, large-volume responsibilities. A move to client/server doesn't include abandoning the mainframe.

Regardless of what client/server proponents assert, mainframes are in our future.

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President, Boston Chicken*



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Computer Careers

PASSING MUSTER

Value-added resellers are hot on document image management and Lotus' Notes experience, but expect some roadblocks when looking for a job at smaller shops.

BY

DANIEL LYONS

If you're thinking about working for a value-added reseller (VAR), expect to encounter some prejudice. Smaller VARs are often wary of traditional information systems backgrounds.

"Integrators, the guys in the trenches, are a different breed," says Mike Bridges, director of technical services at CME, Inc., a client-server VAR in South Plainfield, N.J. "We work by the project, and it doesn't matter if you have to stay up 24 hours to get it done."

Some say the pace is faster and job responsibilities are not as clearly defined as in larger firms. "I need people with a broad range of abilities," says Jeff Livingston, president of Digital Productions, Inc., a network integrator in Owego Mills, Md. "I'd rather have a good hacker than someone who's had five years at a big company."

Lack of flexibility is often the problem. "If [someone] wants 2,000 Notes licenses and they're ready to give me a [purchase order] today, we change direction 180 degrees and run," says Don Gillette, vice president and founder of CEG Technologies, Inc., an imaging and groupware VAR in Anaheim, Calif. "A lot of people from the corporate world tend to be a little structured, and that upsets them."

While smaller VARs may view an IS background as a drawback, larger integrators say that's hardly the case. "When you have a \$500,000 project to de-

liver over the course of nine months, you need a senior person who understands the issues, who can motivate people and who can manage a project," says Claude Montplaisir, a director at LGS Group, Inc., a consulting and integration firm in Montreal. "You find those people in the IS departments at large corporations."

Ideal job candidates, Montplaisir says, have knowledge of all areas, including mainframes and mini-computers as well as PCs, graphical user interfaces and local- and wide-area networks. "They're very rare," he says.

In addition, a premium is placed on C++, SQL database programs and client/server development tools. Yet one of the most sought after expertise is in document image management or Lotus Development Corp.'s Notes. "We'd love to find a Notes programmer, but it's nearly impossible," says Robert Laudadio, project manager at Concept Information Systems, Inc. in Stamford Conn. And competition for jobs is steep. After advertising for three programmer positions, Laudadio says his firm has been receiving about 200 resumes a week.

Bob Cooke, chief information officer at Domeq Importers, Inc., a liquor importer in Old Greenwich, Conn., has worked on both the VAR and IS sides. After three years in IS at Domeq, he has been thinking about moving back to the VAR world.

Although Cooke says his IS job at Domeq has been good, he sometimes misses the VAR lifestyle. "With my last job at a VAR, I had an apartment in Denver, an apartment in California, and I spent a lot of time in Sydney, Australia. I traveled all over the place. It was very exciting."

Lyons is a free-lance writer in Ann Arbor, Mich.

The sky's the limit

Belinda Schlee's experience with Lotus' Notes helped her get a job at CEG Technologies. But since she joined the firm, she has become a jack of all trades.

"There's really no typical day," she says. "That's the beauty of it." Before joining CEG, the 29-year-old Schlee worked in the IS department at a large oil firm. She sat at a desk and programmed in Cobol. At CEG, however, she travels about once a month, "not to the point where it's distracting, but enough that it's refreshing," she says.

Schlee easily adapted to the pace. "The lack of structure is exciting. You have to invent everything," she says.

CEG founder Don Gillette, an IS veteran himself, says Schlee's IS experience gave her a strong work ethic. "She's one of the best workers we have."

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By Alan Radding

Smalltalk sizzle

As a young computer science graduate with a few Smalltalk classes and a job under his belt, Wayne Beaton intended to take some time off before finding a job. But before he could pack his knapsack and hit the road, his phone was ringing off the hook because of his Smalltalk exposure. "They were calling me!" he says. In turn, he took a job with Object People, a Smalltalk training and development company in Ottawa.

Well-suited for fast, iterative prototyping, Smalltalk is emerging as the preferred language for business process re-engineering projects. It is "where the Cobol programmer should go in the 1990s," says John Dove, senior vice president at the Object Studio business unit

at Esel Corp. in Burlington, Mass.

As a result, the demand for Smalltalk programmers is great, and the supply is tight. "We can't get enough people. We're hiring right out of college," Beaton says. Meanwhile, his phone keeps ringing. "I'm routinely offered jobs for large sums of money."

How much money? Based on figures kicked around in various Smalltalk-oriented on-line forums, contractors with fundamental Smalltalk skills can earn \$100 a day. Experienced developers and architects command as much as \$150 a day. Salaries positions can exceed \$100,000 a year.

The demand is driven by the surging corporate interest in object-oriented programming (OOP). Companies that want OOP benefits have two basic choices

in making rapid inroads and is projected to have a 30% market share by 1997, reports Richard Dym, vice president of marketing at ParePlace Systems, Inc. in Sunnyvale, Calif.

Smalltalk and C++ proponents constantly debate the merits of one over the other. Programmers who come to objects with a background find C++ more familiar, but they risk missing the benefits of objects because they can easily slip back into C programming. For non-C programmers, Smalltalk is easier to learn, its proponents argue, because it doesn't require the complex syntax of C and transparently handles low-level system details such as memory management.

Professionals with a procedural-oriented MVS/Cobol development background need not be left out, however. "There is a 90% probability that they can make the transition," says Tom Love, vice president in charge of the Object Technology Practice at the IBM Consulting Group in Southbury, Conn. It takes about six months to bring a competent traditional programmer up to speed, he continues. Love's group is actively seeking Smalltalk programmers.

The biggest problem traditional developers have making the transition is learning to think in objects, says Dave Thomas, chief executive officer of Object Technology International in Ottawa. "You really need the ability to do abstraction to make inheritance work. You must

Obstacles to transition

Smalltalk may be where C++ developers want to go in the 1990s, but John Dove, senior vice president at the Object Studio business unit of Esel Corp. in Burlington, Mass., points out that they must overcome the learning material hurdle in order to get there.

Reading code: Smalltalk programmers spend more time reading code to find and understand existing classes for reuse than they spend writing new code.

Reconceptualizing everything: as an object. Newbies, enthusiastic, must structure, data structures and even are represented as objects.

Seeing messages: Smalltalk programs do all their work by sending messages from one object to another.

Thinking in terms of classes: Inheritance and inheritance. Object programming needs inheritance amounts of the programming used in statements that Smalltalk deals with as part of the class hierarchy.

be able to see three things and recognize that two are similar and the other is different."

Smalltalk training is hard to find. Vendors and training companies provide a variety of programs, but only a few universities, such as the University of Illinois in Urbana and the University of Illinois, currently offer the language.

The biggest demand for Smalltalk programmers is from the banking, insurance, investment, utilities and health care industries. In addition, consulting companies and software vendors have great demands for Smalltalk programmers. Openings are frequently posted on-line, such as on the comp.lang.smalltalk bulletin board accessed via Usenet or the Digital forum on CompuServe. ■

Radding is a free-lance writer in Newton, Mass.

Three flavors

The nature of object-oriented programming, and Smalltalk in particular, makes it possible to become productive before you master the entire object environment. Object-oriented development lends itself to three levels of programming:

- 1 Object assemblers** — Programmers who build applications by linking objects from prebuilt and tested classes. They generally know only what the object does rather than how it works and may never actually touch Smalltalk.
- 2 Class Object builders** — Programmers who define, build and test object classes for use by object assemblers. These developers need to know Smalltalk.
- 3 Object framework designers** — Programmers who design collections of interrelated object classes to address a business situation.

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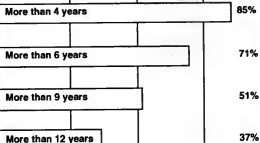
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47,195

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112,959

for large-scale systems

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for mid-range systems

88,948

for PCs/workstations

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Non-CPU Computer

23,072

products manufacturer

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53,003

contract DP services

74,686

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462,930

Manufacturing (not computers)

101,020

Insurance

52,857

Healthcare

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68,840

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85,753

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29,586

Communications Systems

28,985

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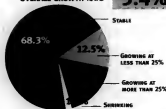
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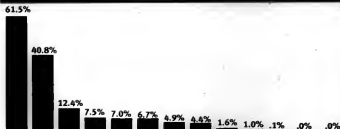
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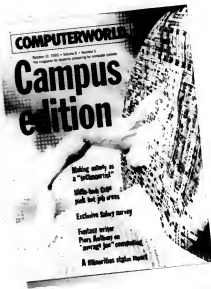
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Computerworld's Campus Recruitment Edition! For a rate card reflecting complete campus distribution, call John Corrigan, Vice President/Classified Advertising, at 800/343-6474 (in MA, 508/879-0700). But hurry ... this issue closes September 16, 1994.

Planned Editorial Features:

(subject to revision)

- Companies where computer career students want to work. And their top choices for: Information Systems, Engineering, Sales & Marketing, Technical Support, Research & Development.
- Information Systems salaries from Computerworld's annual survey with the Association for Systems Management
- And much more!

Marketplace

Support status

PC

BY JULIE HART
SERVICE AND WARRANTY PROGRAMS ARE CONSTANTLY BEING REVAMPED TO MAINTAIN CUSTOMER LOYALTY. DELL COMPUTER CORP., FOR INSTANCE, INTRODUCED A NUMBER-OF-SERVICE GUARANTEES LAST YEAR, INCLUDING A COMMITMENT TO ANSWER CUSTOMER CALLS AND FORWARD THEM TO A DELL TECHNICAL SPECIALIST WITHIN FIVE MINUTES. IF THE COMPANY FAILS, IT PROMISES TO GIVE ITS CUSTOMERS A \$25 CREDIT OR CASH PAYMENT.

While no other PC vendor has added this service, there is a vendorwide trend toward providing more bang for the buck. For example, in 1992 Compaq put a three-year warranty on every unit it shipped, says Stephen Clancy, director of desktop support services at Dataquest, Inc. Now, other vendors are jumping on the bandwagon. "However, most vendors are bumping up warranties from one to three years to meet competitive pressures, not because they think it's what their customers want," Clancy adds.

In fact, not all companies may realize the benefits of an extended warranty. "Large companies tend to turn PCs over quickly," says Helen Dragoon, International Data Corp.'s senior analyst for systems support services. If your organization tends to keep PCs for three or more years, the warranty can be valuable. However, analysts recommend carefully reviewing warranty terms and conditions. In most cases, the first year includes on-site service. Depending on the vendor, though, the response can range from the same day to the next day or later. The second and third years of the warranty period typically cover parts only. "If you pick a vendor with a warranty or service plan that is empty in value, your company is going to lose productivity," Clancy says.

Hart is a free-lance writer in San Jose, Calif.

In a recent survey, user companies outlined the pluses and minuses of their PC warranties and support. Even though PC vendors are constantly adding new services, response time is still an issue.

Current warranties . . .

Desktop PCs (more than 3 years old)		PC servers (more than 3 years old)	
Vendor warranty	6.5%	Vendor warranty	6.2%
Vendor warranty with upgrade	2.3%	Vendor warranty with upgrade	2.0%
Post-warranty repair contract	10.3%	Post-warranty repair contract	21.0%
No contract	80.9%	No contract	70.8%
Inc. #1		Inc. #1	
Desktop PCs (less than 3 years old)		PC servers (less than 3 years old)	
Vendor warranty	42.6%	Vendor warranty	47.8%
Vendor warranty with upgrade	9.9%	Vendor warranty with upgrade	7.9%
Post-warranty repair contract	10.6%	Post-warranty repair contract	15.5%
No contract	36.7%	No contract	28.7%
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. . . and support

Five most wanted services		Preferred support methods	
Product warranty		On-site	45.2%
Hardware maintenance		Users' choice	27.2%
Telephone support		Parts swap	17.9%
PC LAN services and support		Dispatch	6.6%
Electronic tools (CD-ROMs, bulletin board systems)		Other	3.1%
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Five areas needing the most improvement		Top warranty expectations	
Response time		Free phone support	
Product price		Committed repair time	
Problem resolution time		Network phone support	
Product quality		Application installation	
Staff's technical skills		After-hours support	
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Source: Dataquest, Inc., San Jose, Calif., Desktop Support Services, User Needs and Needs Study, February 1993 computer

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News Shorts

MCi opens voice-mail business

MCi Communications Corp. entered the voice-mail business last week, launching a nationwide voice messaging service. MCi Network Voice Mail can be reached via an 800 number or by a local call in more than 25 metropolitan areas. For a \$10 to \$30 per month mailbox fee, users get up to two hours of free messaging. Sophisticated features including group broadcasting and bulletin boards are also supported.

Japanese mainframe sales slowing

Hitachi Ltd., Fujitsu, Inc. and Toshiba Corp. all reported lower earnings on flat or declining sales for their fiscal years ended March 31. Hitachi's net profit declined 16% to \$65.4 million on a 2% revenue drop that was blamed on weak demand from Japanese customers. Fujitsu's net loss widened to \$365.7 million as revenue declined 3%.

First official iceberg customer signs up

Storage Technology Corp. recorded its first official sale of its Iceberg 5200 mainframe redundant arrays of inexpensive disks subsystem to Kaiser Permanente Health Plan, Inc., which is using the device in its Gardens, Calif., data center and has ordered a second unit. Kaiser had been testing Iceberg since January. There are now 80 Icebergs being tested in the field, according to StorageTek, which said it expects to sell \$350 million worth of the array this year, or approximately 400 units.

Message management efforts progress

In a move to head off a vendor standards battle, the Electronic Messaging Association (EMA) said it is stepping up its message management efforts. An EMA workgroup has been defining corporate needs for managing heterogeneous messaging networks since 1982. Last month, Microsoft Corp. spawned its own message management group. Now, the EMA said it will deliver a list of user requirements in July and work with the Microsoft group to encourage other vendors to join and to hone technical specifications.

IBM unveils data access tools for DB2

IBM officially launched the Visualizer family of data access tools, including Visualizer Query, a query and reporting tool for the IBM DB2 line of databases. The first release, running on AIX, will ship next month with a follow-on version for OS/2 scheduled for August. IBM said the software will be upgraded to work with other SQL-based databases from such suppliers as Oracle Corp. and Sybase, Inc. by the end of the year.

SHORT TAKES The Washington-based Electromagnetic Energy Association plans to start setting industry standards for computer monitors. ... Kopin Corp. in Taunton, Mass., last week announced the largest U.S.-based factory for thin film transistor active-matrix displays. The Westboro, Mass., factory has the capacity to manufacture 1 million panels a year. ... Powersoft Corp. and Transarc Corp. last week announced an interface between Transarc's Encina for Windows client/server on-line transaction processor framework and Powersoft's PowerBuilder development environment. ... Advanced Logic Research, Inc. in Irvine, Calif., announced several additions to its Intel Core Pentium- and 486-based PC lines. The systems run the gamut from D0286-MHz systems to a top-of-the-line 90-MHz Pentium-based file server that is dual-processor-ready and has a Peripheral Component Interconnect bus. The server starts at \$2,795.

PC Co. details server plans

By Jal Kumar Vijayan

As the IBM PC Co. attempts to quietly lay its Micro Channel Architecture (MCA) to rest, it has also begun to define a server strategy that will eventually include cluster servers, symmetrical multiprocessor (SMP) systems and possibly PowerPC-based PC servers.

Last week, Michael Coleman, the PC Co.'s general manager of PC servers, stressed that users could expect to see more open, mainstream server offerings from IBM.

Meanwhile, IBM will offer its estimated 9 million users of MCA-based systems a Peripheral Component Interconnect (PCI)-to-MCA bridge to give them a migration path to evolving IBM products.

Coleman said the reorganization of the PC Co.'s server business will give it greater access to "some of the more traditional areas of [IBM's business] that we needed relationships with, especially from the mainframe side."

He said he hopes that by aligning the PC Co.'s business more closely with IBM's midrange busi-

ness, the PC Co. will be able to leverage traditional IBM expertise in the enterprise-wide computing arena and translate that into effective client/server strategy at the PC server level.

"Although we were a terrific hardware builder, we didn't always marry the technology to software that could bring it all alive," Coleman said.

First things first

IBM plans to first enter the standard server market with its newest Extended Industry Standard Architecture server and then progressively offer users more connectivity and horsepower through cluster servers and SMP systems as management software for it becomes available.

On the hardware side, IBM has incorporated several options that would allow users to achieve this growth, Coleman said. With features such as an enhanced integrated drive electronics PCI-e new IBM SCSI-3 adapter and nine channel adapters, the new server platform would allow users to stay

current with their hardware and software requirements, he said.

At the same time, Coleman said, IBM would willingly look at alternative architectures or technologies if necessary. "If, at some point, it becomes necessary to use the PowerPC [chip], I wouldn't mind looking at it at all," he said.

On the software side, he said, several of the features on the enhanced version of IBM's NetPiny management software had been adapted from IBM's mainframe and minicomputer systems management software models.

Features of NetPiny 2.0 include enhanced LAN management features such as Simple Network Management Protocol and paging support, as well as remote management of NovellWare 3.11 and systems under Windows 3.1.

NetPiny has been optimized for networked environments by providing LAN administrators with an extraordinary level of detail and asset management. It is the building block for future network management software from IBM, Coleman said.

Drop that title!

CONTINUED FROM PAGE 1

ists. In a nutshell, "the title laws prevent anyone other than people educated and licensed in one of 36 recognized engineering disciplines from using the words 'engineer' or 'engineering' to describe their occupation."

Disciplines recognized by these laws and by the National Society of Professional Engineers, which helps many states architect the statutes, include agriculture, chemistry and aviation. Yet nowhere is there any mention of software or hardware. "People's company is also undergoing the time-consuming process of purging its marketing literature of all references to engineering, as well as printing new stationery, brochures and business cards. The effort could run into thousands of dollars, according to President Jeff Dobson.

What especially ticks off Phelps is that there are no state-enacted procedures for becoming certified and licensed as a software engineer. "But if I become licensed in any of the recognized disciplines, I can call myself any type of engineer," he noted.

To Association of Systems Management President Ross Flaherty, the statutes are preposterous.

"I find it amazing that they want to corner the concept of engineering

and engineering," Flaherty said. "Does that mean the driver of a train can't call himself an engineer without going through a four-year accredited school for operating a locomotive?"

Last week, Flaherty — like others in the industry, including executives of the Society for Information Management (SIM) — were surprised to learn that such statutes exist. "No one here seems to

"I find it amazing that they want to corner the concept of engineers and engineering. Does that mean the driver of a train can't call himself an engineer without going through a four-year accredited school for operating a locomotive?"

— Ross Flaherty, Association of Systems Management

be aware of them or has come up against this issue before," a SIM spokesperson said.

According to the engineering society, the laws were enacted to safeguard the public against fraud and substandard work on public projects such as bridges and roadways. They were also meant to protect the credentials of registered professional engineers.

"The title of engineer has a very specific connotation," said Roger

Strickland, executive director of the National Council of Examiners for Engineering and Surveying in Clemson, S.C. "It generally refers to people who by virtue of education, examinations and employment are employed in an engineering field."

IS professionals participating on committees involved in drafting programmer certification standards were also taken aback by the existence of the title laws.

"I know of no rules against calling yourself a software engineer, but I do think there ought to be standards developed for using that title," said Donald Guterbaum, associate professor of computer and information sciences at East Tennessee State University.

In fact, Ross noted, during the past few years, several IS groups have adopted the title of software engineer to replace programmer/analyst and distinguish between business analysts and people who develop software.

Strickland said title statutes are nothing new. In most states, they have been on the books for years, though not always enforced.

But in Tennessee, Madeline Roberts, an administrative assistant at the state examiner's office, said lately she has been receiving complaints almost daily concerning title act violations.

"Some people will copy the Yellow Pages for us. Basically, most of the complaints come from registered engineers," she said.

Routing

CONTINUED FROM PAGE 1

larger than McData. That's a nice thing about standards. There are so many to choose from."

Chemical Banking Corp. in New York has done preliminary testing for both functionality and interoperability on routers that support RFC 1434, an IBM-developed firmware to DL5w. However, more tests are needed before the bank commits to DL5w, said Al Candela, a vice president in its corporate telecommunications department.

"The jury's still out," Candela said. "This isn't something that in the near future we'll be looking to for providing large-scale access to our SNA host network. There's no way we'd try that right now."

Performance tests released last week by The Tolly Group, an independent testing lab in Manassas, N.J., indicated that router vendors should be able to develop DL5w implementations with throughput similar to that provided

by proprietary SNA-over-TC/IP approaches (see chart). "If nothing else, the tests validate the Data Link Switching approach from a performance standpoint," said Kevin Tolly, president of The Tolly Group.

But Tolly noted that capabilities such as NetBios caching and bandwidth prioritization were made optional or deferred in order to get agreement on the standard in a reasonable time frame. "There's a chance that it will be watered down," as a result, he said.

Lyan Nye, a principal at NetResults, a consultancy in Los Gatos, Calif., said DL5w will be useful to customers who are "doing everything they can to move away from SNA" as a transport. But he noted that emerging router products based on frame relay, and eventually cell-based transports, could provide more reliable alternatives to encapsulating SNA data in TCP/IP. "There's a deflation of the panacea" of expectations surrounding DL5w, Nye said.

DL5w backers contended that the interoperability concerns are overstated and said the standard—still prom-

Router ratings

THE TOLLY GROUP TESTED THE PERFORMANCE OF SEVEN ROUTER VENDOR FOR TRANSMITTING 256-KB SNA DATA PACKETS ACROSS A T1 LINE.

VENDOR/PRODUCT	THROUGHPUT
IBM 6881 Network Processor Version 3 Release 2	330K b/s/sec.
WELLFLEET COMMUNICATIONS, INC. Backbone Concentrator Node Version 7.7.3	790K b/s/sec.
PROTON, INC. CMX 660 Version 35.0A	1.33M b/s/sec.
CISCO SYSTEMS, INC. 7500 Multiservice Router Version 3.0 (Beta)	1.5M b/s/sec.
3COM Corp. NetBuilder II Version 7	1.23M b/s/sec.

IBM, WELLFLEET AND PROTON SUPPORT RFC 1434, AN IBM-DEVELOPED PROTOCOL TO THE PERFORMING DATA LINK SWITCHING STANDARD. CISCO AND 3COM USE PROPRIETARY SNA-OVER-TCP/IP IMPLEMENTATIONS.

Source: The Tolly Group, Manassas, N.J.

ised in draft form by October despite vendor infighting [CW, April 25] — will provide a worthwhile improvement over the current mishmash of proprietary SNA-over-TCP/IP methods.

"Everybody doing their own games when they're doing proprietary technology and [DL5w] is a way to get away from that," said Steve Romanie, a partner at Informed Technology Decisions, Inc., a consulting firm in Green Farms, Conn.

Jim Steigerwald, development manager for IBM's 6811 routers, said keeping the required parts of the standard relatively lean will let routers "interoperate at a basic level while allowing different vendors to proceed at their own pace" with DL5w.

The DL5w group is still trying to "find the right base step that isn't too big for vendors but has enough functionality to deliver something meaningful to the customer," Steigerwald said. But he and others noted that, at a minimum, the capabilities to pass and terminate SNA messages, manage flow control and handle errors should be included.

Databases

CONTINUED FROM PAGE 1

Indeed, Oracle Corp., Sybase, Inc. and Informix Software, Inc. have said little about their plans to incorporate true object-oriented features into their engines. Although Sybase and Oracle have talked about video-on-demand capabilities, "watching movies enabled by your database is not what people want to hear when they're building applications," noted Rob Tholemeier, an analyst at Meta Group, Inc. in Burlingame, Calif.

While users and analysts laud The ASK Group, Inc.'s Ingres database for providing more advanced object features than the other major relational database players, money troubles have prevented ASK from making the most of that advantage [CW, May 23]. And ASK's continued technological prowess is in question now that computer Associates International, Inc. has made a \$300 million bid to buy it (see page 73).

In fact, the most specific information the database vendors have given so far is that they plan to rely on standards, such as the Object Management Group's Common Object Request Broker Architecture.

Waiting for SQL support

Overall, relational companies say their hands are tied until the structured query language (SQL) used to talk to relational databases can support objects. American National Standards Institute committees are working on such extensions, known as SQL 3, but no final specification is in sight.

Relational vendors point to their support for binary large objects

(Blobs) as a first step on the path to objects, but that is not true object functionality, said Curt Monash, a consultant and president of Monash Information Services in New York.

Blob support means databases can break down simple pictures or diagrams to store them in relational formats. Although users can call and store the pictures, traditional queries cannot be performed on them. "That's not much use to an object programmer," Monash noted.

Users want more practical object

Object highlights

ANALYSTS SAY INGRES SPOTS THE MOST OBJECT TECHNOLOGY AMONG THE ROBUST RELATIONAL DATABASE VENDORS

	HERE AND NOW	IN 12 MONTHS
Informix Online	Binary large objects	Object-oriented dtd.
Ingres	Hybrid relational-object features, spatial libraries, binary large objects	More classes libraries
Oracle 7	Binary large objects	Voice, video and audio
Sybase SQL Server	Binary large objects	Voice, video and audio

features that will help build and run new kinds of business applications, Tholemeier said.

Joseph Bayrhammer, a technical manager at Volkswagen GmbH, agreed. Relational databases "let us store Blobs, but that was it," he said, referring to pilot projects Volkswagen ran when it evaluated products for a worldwide car sales application last year. "Relational databases today are not built to let objects actually function," he added. The objects "sit idle." To correct that shortcoming, Oracle

plans to wedge an object layer—called Object Mediator—into its architecture rather than build a new object-oriented database from the ground up, said Juana Daub, vice president of product strategy and technology at Oracle.

Sybase, meanwhile, must reconcile its SQL Server relational database with the Objectivity, Inc. object-oriented database that underlies development tools Sybase plans to roll out during the next year. "It's still not clear that Sybase can bring both objects and relational features together until it has an overarching repository," said Herb Edelstein, an analyst at Euclid Associates in Potomac, Md.

Demos abound

In the meantime, DB/Expo attendees saw object announcements and demonstrations from smaller tools and database firms. For example, Gupta Corp. showed QuickObjects, a set of object additions to its SQLWindows client/server development tool kit, and Uniface Corp. demonstrated general object features new to Uniface 6.0 development products. Both are expected to ship this summer.

Waiting users are not standing idly by, however. Unable to find desired object functions in relational databases, Pacific Gas & Electric Co. recently signed an unusual three-way applications development pact with Microsoft Corp. and Ontos, Inc., an object database firm in Burlington, Mass.

The firms will cobuild customer service, billing, network management and other applications using object techniques that relational technology couldn't support, said Tom Burke, an engineering manager in PG&E's Applied Technology Services group. The Ontos/DB 3.0 database will run atop Microsoft's Windows NT.

Reporter's Notebook

After taking Oracle to task for going Hollywood

with video-on-demand deals with telecommunications and media firms, Sybase finally outlined plans to ride the information highway late this week. A video- and audio-capable product set, dubbed Intermedia, will be based on Sybase's SQL Server database. Also included is Gain Interplay, a new scripting language for Data Momentum, Sybase's multimedia PC development tool. Sybase said Intermedia will be available in the first half of 1993.

Although it has leaked details in dribs and drabs for the past couple of months, Oracle plans to formally announce a global reorganization of its sales, distribution, consulting and technical support departments on June 1. Oracle has constructed teams from several departments who will act as a single point of contact for customers.

Add Sun's Solaris to the short list of operating systems to which IBM has ported to DB2. A client version of DB2/000 for Solaris is slated to ship next month in response to a request from "a large, large bid," said Janet Perna, director of database technology. IBM customers "have shown some interest" in a DB2 port to Microsoft's Windows NT, "but not enough to make us move on that in the near term," she said. But IBM does have DB2 on NT running in a Toronto lab.

—Kim S. Nash

Friday Stock Ticker

Gainers Losers

Gainers		Losers	
Company Name	Change	Company Name	Change
General Technologies Inc. (S)	0.1	Computer Sciences Corp.	-0.1
General Electric	0.1	General Electric	-0.1
General Motors	0.1	General Motors	-0.1
General Electric	0.1	General Electric	-0.1
General Electric	0.1	General Electric	-0.1
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General Electric	0.1	General Electric	-0.1
General Electric	0.1	General Electric	-0.1
General Electric	0.1	General Electric	-0.1
General Electric	0.1	General Electric	-0.1

Dollar

Company Name	Change
Computer Sciences Corp.	-0.1
General Electric	-0.1
General Motors	-0.1
General Electric	-0.1
General Electric	-0.1
General Electric	-0.1
General Electric	-0.1
General Electric	-0.1
General Electric	-0.1
General Electric	-0.1

PC Companies will have more to report later. Most of the companies that will be making announcements will be in the software and services sectors.

No taste for accounting

Much scrutiny is being lavished on accounting procedures for computer companies — particularly new public firms — in the wake of share price erasers by Kendall Square Research Corp. (KSRC) and Media Vision, Inc. (MYSE).

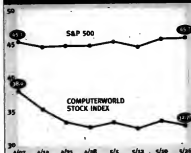
Both companies followed extremely aggressive revenue recognition policies. Kendall Square Research, for example, shipped systems and booked income before academic customers guaranteed that the funds would be available in some cases.

By contrast, Unix file server vendor Auspex Corp. (ASPK) often does not book revenue until well after the check arrives. Auspex waits until the customer has installed the equipment and expressed complete satisfaction. Yet despite this refreshingly conservative fiscal approach, other concerns have pulled Auspex shares down since its high-profile initial public offering a year ago.

Auspex launched at 12 and now trades below 5. Carl Rohman, vice president at CS First Boston in New York, attributed the drop-off largely to a loss of focus on Auspex's after-market — a high-throughput file server.

"They started looking at whether [their product] could be an application server, a video server and so on," he said. The company has refocused its efforts on the file server market, which has solid, if unspectacular, growth potential, Rohman said. — Derek Slater

STOCK TRADING INDEX



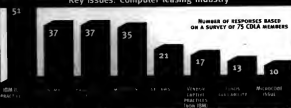
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INDUSTRY PULSE: Computer leasing

Percent of volume, leasing vs. buying/selling



Key issues: Computer leasing industry



Total new business volume



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Inside Lines

The wild, wild electronic frontier

Cyberpace is quite a rough-and-tumble place these days. MTV is using former rock band **Adams Curry** to get him to stop using **mtc.com** as an Internet domain address. In another case, a legal defense fund is being raised for **journalist Brock Meeks**, who is being sued for allegedly libeling a company in his electronic newsletter. Meanwhile, "netters" are debating whether it is appropriate to retaliate against those who post ads on the Internet by swamping them with electronic hate mail known as "mailbombing." The latest ad to break proper "netiquette" was for **Skippy Dip** (high cream, priced at \$20.95).

Virtual multimania

Ralph Ungermann, founder and former CEO of **Ungermann-Bass**, reentered last week as CEO of start-up **First Virtual Corp.** in Santa Clara, Calif. **First Virtual's** goal "is to bring desktop multimedia using **Asynchronous Transfer Mode (ATM)** into the mainstream by offering products that let people deploy **ATM** widely," Ungermann says. To bring products to market quickly, **First Virtual** will partner with a wide variety of companies such as **Advanced Telecommunications Modules Ltd.** in Cambridge, England.

Wiring line

Wireless communication may be in your near future, and **Comdex Fall '94** could mark the first big push by vendors to include infrared communications in their products. **IBM's ThinkPad** notebooks and printers, as well as printers from **Lexmark**, should be among the wave of products that will come out in the wake of the **Infrared Data Association's** standard, said sources close to the companies. Currently, **Hewlett-Packard** is the only major vendor that offers infrared as an option.

Taking no Notes on Alpha

As far as **Lotus** is concerned, there will be no **Notes** version on **Digital's Alpha** platforms. When asked what kind of relationship it has with **Digital**, a **Lotus** executive said, "We don't. **DEC** is weak. We were having a discussion with [Edward] Liscione [Digital's former head of sales and marketing], but those ended when he left, and we haven't picked them up with anyone else there."

Did we say that?

Forgot what **IBM** said about planning to bring a **Personal Digital Assistant (PDA)** to market next year (CW, March 14). **Scott Bower**, director of mobile computing brands at **IBM PC Co.**, said at a recent **ThinkPad** announcement that it's no longer in the cards. The market appears to be developing even more slowly than **IBM** thought, he explained. Bower did say that **IBM** will ship an **810M**-type hard drive for the **ThinkPad** line in July. Other **ThinkPad** plans include building in **CD-ROM** capability, infrared communications and digital signal processors.

Network Notes under way

The first phase of **AT&T Network Notes** is under way. **Lotus** and **AT&T** are testing an **AT&T** service whereby corporate **Notes** users can dial **960-1ATT**, enter some codes and access company **Notes** servers. One benefit is that traveling users can make a local call to reach a server. The service will operate first at **14.4K bps/sec**, followed by **28.8K bps/sec** next year. **Lotus** and **AT&T** will announce availability and testing in the fall, a **Lotus** spokesman said.

Talk about Big Brother. One seminar speaker at **DB/Europe '94** last week took over a crowded room with this job: How many **Microsoft** engineers does it take to change a lightbulb? Answer: None. They just change the standard to darkness. Fromleady... or perhaps not... the lights unexpectedly went out a few minutes later. When they came back on, more than one person had the chills. If anything else gives you the chills, just scream up with a call to **Computerworld** about news items or tips. You can call our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor **Maryfran Johnson** can be reached by phone at (508) 820-8179, via the Internet at **mjohnson@cw.com** or through **MCJ Mail** at 590-8017.

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